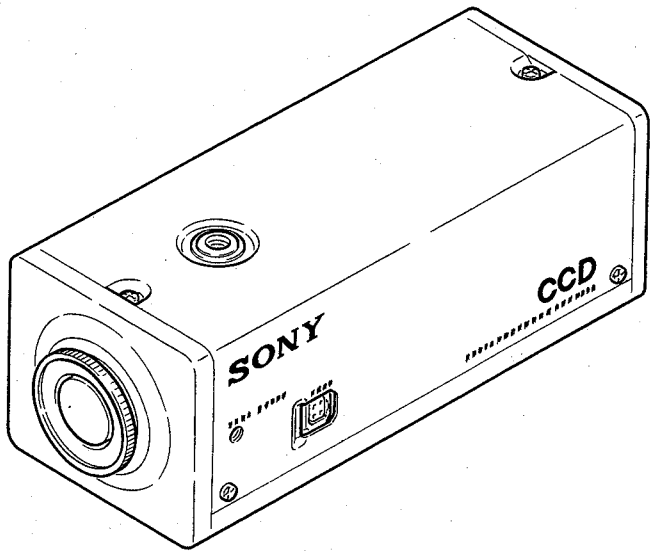
SSC-C350/C350P

SERVICE MANUAL



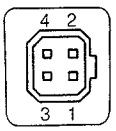
SPECIFICATIONS

Imaging system

Pickup device	Inter-line transfer type CCD
Effective picture elements	
	UC: 510 × 492 (horizontal/vertical)
	EK: 500 × 582 (horizontal/vertical)
Sencing area	6.3 × 4.7 mm (¼ × 3/16 inches)

Optical system and miscellaneous

Lens mount	C mount
Signal system	UC: NTSC Color System
	EK: PAL Color system
Scanning system	UC: 525 lines, 2:1 interlace, 30 frames per second
	EK: 625 lines, 2:1 interlace, 25 frames per second
Synchronization	Internal or external (automatic switching)
External synchronizing signal input	
	VS (sync level 0.3 Vp-p, 75 ohms)
Horizontal resolution	330 TV lines
Minimum illumination	2.5 lux at F/1.2 (AGC on)
Video output	1.0 Vp-p, 75 ohms, sync negative
Video S/N ratio	46 dB minimum (AGC off)
Electronic shutter	UC: 8 settings: 1/60 s, 1/100 s, 1/250 s, 1/500 s, 1/1000 s, 1/2000 s, 1/4000 s, 1/10000 s
	EK: 8 settings: 1/50 s, 1/120 s, 1/250 s, 1/500 s, 1/1000 s, 1/2000 s, 1/4000 s, 1/10000 s
White balance	AWB (Automatic White Balance) and ATW (Automatic Tracing White Balance) switchable
AGC	Switchable on/off
Input and output connectors	
	DC 12V terminals
	VIDEO OUT (when using combined power cable: DC IN.VS IN/VIDEO OUT) BNC type
	VS IN (when using combined power cable: MONITOR OUT) BNC type
	LENS: 4-pin connector (pin assignment as follows)



Side of camera body

Pin	Signal
1	Power supply (9 V DC, 50 mA)
2	Unused
3	Video output signal for lens (0.7 Vp-p, no synchronization signal)
4	Ground

Power requirements	For 12 V DC supply: 12 V DC ± 10% For YS-W130/W130P camera adaptor: 24 V DC ±5 V
Power consumption	For 12 V DC supply: 2.4 W For YS-W130/W130P camera adaptor: 3.5 W
Operating temperature	−10°C to 50°C (14°F to 122°F)
Storage temperature	−40°C to 60°C (−14°F to 140°F)
Relative humidity (operating)	20% to 80%
Relative humidity (storage)	20% to 95%
Shock resistance	70 G
External dimensions (w/h/d)	64 (mm) × 57 (mm) × 155 (mm) (2 5/8 × 2¼ × 6 1/8 inches) (excluding external projections)
Weight	660 g approx. (1 lb 7 oz)
Accessories supplied	Lens mount cap 4-pin plug for lens cable Operation manual

Recommended equipment

YS-W130/W130P camera adaptor

Design and specifications are subject to change without notice.

CCD Color Video Camera

SONY®

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SECTION 1
GENERAL

1-1. FEATURES

The SSC-C350/C350P color video camera uses a 1/2-inch CCD (Charge Coupled Device) with 510 (UC)/500 (EK) (horizontal) 492 (UC)/582 (EK) (vertical) picture elements. The following are some of its principal features.

High sensitivity
Gives a clear picture even under very gloomy conditions.

CCD IRIS function
Even when a manual iris lens is fitted, the sensitivity is automatically adjusted according to the incident light level. This keeps the video signal at a suitable level.

Automatic adjustment of white balance
The automatic adjustment mode stores the adjusted value; alternatively the automatic tracing mode responds to the lighting conditions to adjust the white balance automatically. Thus a picture with an appropriate color balance is always obtained.

Electronic shutter function
Eight shutter speeds are available, for various shooting conditions.

External synchronization
A number of cameras can be synchronized with the same reference synchronizing signal so that they can be controlled by a video switcher; you can switch from a camera to another without causing picture distortion on the monitor screen.

Combined power cable (using YS-W130/W130P camera adaptor)
A single 75-ohm coaxial cable (not supplied) connecting the camera to a YS-W130/W130P camera adaptor (not supplied) carries the video output signal, as well as the power supply input and external synchronizing signal.

Auto-iris lenses
A C-mount auto-iris lens can be used, by connecting the lens cable with the plug supplied.

1-2. NOTES ON USE

Power supply
This unit must always be operated with a 12 V DC power supply, or using the YS-W130/W130P camera adaptor (not supplied).

Handling of the unit
Be careful not to spill water or other liquids on the unit, or to get combustible or metallic material inside the body. If used with foreign matter inside, the camera is liable to fail, or be a cause of fire or electric shock.

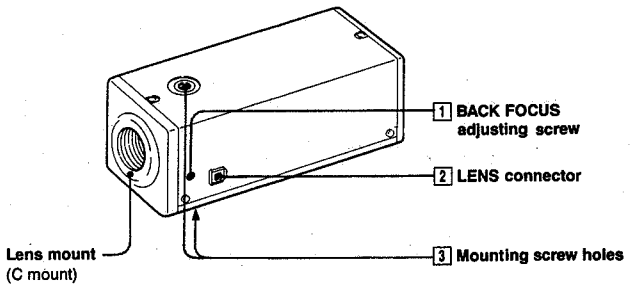
Operating and storage locations
Avoid shooting a very bright object (such as light fittings) for an extended period. Avoid operating or storing the unit in the following locations.
- Extremely hot or cold places (operating temperature −10°C to 50°C; 14°F to 122°F)
- Damp or dusty places
- Where it is exposed to rain
- Locations subject to strong vibration
- Close to generators of powerful electromagnetic radiation such as radio or TV transmitters

Care of the unit
- Remove dust or dirt on the surface of the lens or optical filter with a blower.
- Clean the body with a dry soft cloth. If it is very dirty, use a cloth dampened with a small quantity of neutral detergent, then wipe dry. Avoid the use of volatile solvents such as thinners, alcohol, benzene, and insecticides. They may damage the surface finish, or impair the operation of the camera.

In the event of any problems with the operation of the camera, contact your Sony service representative.

1-3. LOCATION AND FUNCTION OF PARTS AND CONTROLS

Front and side



1 BACK FOCUS adjusting screw
The camera is shipped with the back focus adjusted to suit almost all lenses. If necessary, turn this screw with a screwdriver to adjust the focal plane. It has a self-locking mechanism, so once adjusted the focus will not drift.

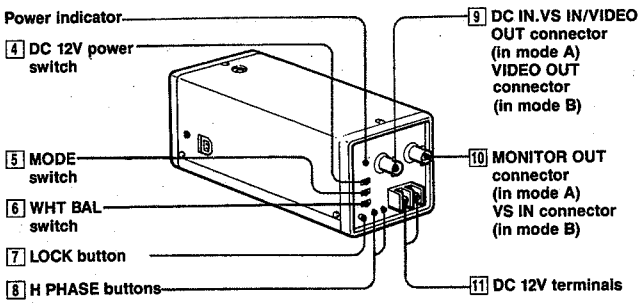
2 LENS connector (4-pin)
When using an auto-iris or zoom lens, replace the plug on the lens cable with the plug supplied with the camera, and plug into this connector.

3 Mounting screw holes
Use these holes to fix the camera to a mounting bracket or tripod. The mounting screw must be as follows.

1/4″ UNC (20 pitch)

ℓ: 4.5 mm ±0.2 mm (ISO standard), or 0.197″ (ASA standard)

Rear


Power indicator
4 DC 12V power switch
5 MODE switch
6 WHT BAL switch
7 LOCK button
8 H PHASE buttons
9 DC IN.VS IN/VIDEO OUT connector (in mode A) VIDEO OUT connector (in mode B)
10 MONITOR OUT connector (in mode A) VS IN connector (in mode B)
11 DC 12V terminals

4 DC12V power switch
This turns the power on and off when using a 12 V DC power supply directly connected. It has no effect when the camera is used with a YS-W130/W130P camera adaptor.

5 MODE switch
This switch determines the power supply mode.
Mode A: for use with a YS-W130/W130P camera adaptor (not supplied).
Mode B: for use with a 12 V DC power supply connected to the terminals 11.
The video connectors 9 and 10 also have different functions depending on the mode setting.

6 WHT BAL (white balance) switch
This sets the white balance adjustment mode.
AWB (Automatic White Balance): When the LOCK button 7 is pressed, the white balance is automatically adjusted, and the setting is stored in memory. When the switch is set to this position the white balance always takes the previously stored value.
ATW (Automatic Tracing White Balance): The white balance is continuously adjusted to take account of variations in the incident light color temperature.

7 LOCK button
With the white balance switch 6 set to AWB, point the camera at a white object such as a white wall or piece of white paper so that the monitor is completely white, and press this button. The white balance value will be automatically adjusted and the current value stored.

8 H PHASE (horizontal phase) buttons
Use these buttons to compensate for horizontal phase discrepancies which will occur when the camera is used with an extended cable. Use the tip of a ball-point pen or similar instrument to press the buttons, which are recessed.

9 DC IN.VS IN/ VIDEO OUT connector (in mode A)/ VIDEO OUT connector (in mode B)
This is a BNC type coaxial connector to be used as follows depending on the setting of the MODE switch 5.

MODE setting	Input	Output	Connected to:
A	Power supply and external synchronizing signal	Video signal	YS-W130/W130P camera adaptor
B	——	Video signal	Video monitor or switcher

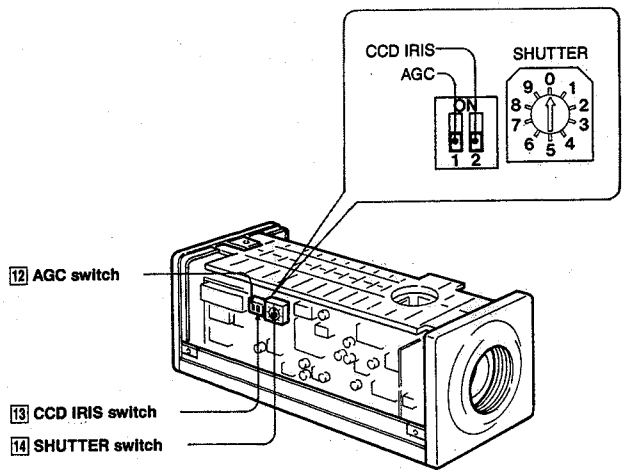
10 MONITOR OUT connector (in mode A)/VS IN connector (in mode B)
This is a BNC type coaxial connector to be used as follows depending on the setting of the MODE switch 5.

MODE setting	Input	Output	Connected to:
A	——	Video signal	Video monitor
B	External synchronizing signal	——	Synchronizing signal generator

Caution
When using the camera with a 12 V DC power supply directly conected, if the MODE switch 5 setting is left at A, then a video monitor connected to this connector will not get a correct video signal. In this case, set the MODE switch 5 to B, and connect the monitor to the VIDEO OUT connector 9.

11 DC 12V terminals
Connect these terminals to a 12 V DC power supply.
+: +12 V
−: ground
When using a 12 V DC supply connected directly to these terminals, always set the MODE switch 5 to B.

Internal switches



12 AGC switch
This switches the automatic gain control on or off.

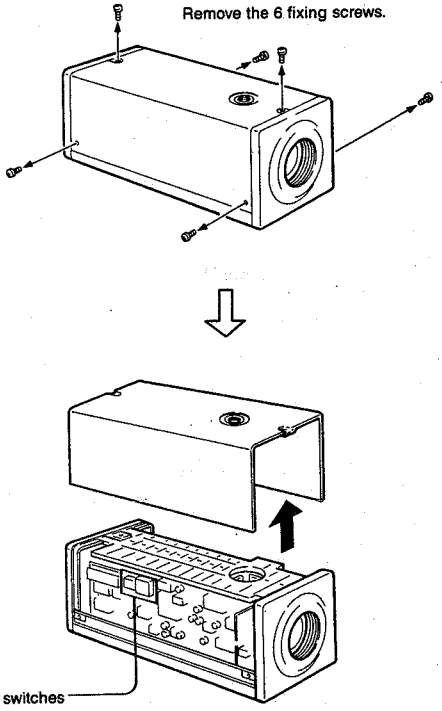
13 CCD IRIS switch
This switches on and off the CCD IRIS function, which automatically adjusts the sensitivity according to the incident light conditions.

14 SHUTTER switch
This switch is effective when the CCD IRIS switch is off. It sets the shutter speed to any of eight fixed settings, from 1/60 to 1/10000 second.

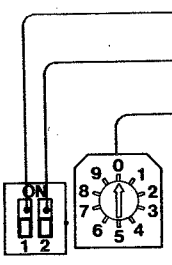
1-4. INTERNAL SWITCH SETTINGS

Before installing the camera, set the internal switches according to the following procedure.

1 Remove the upper cover from the camera body.



2 Set the switches according to the conditions in which the camera is to be used.



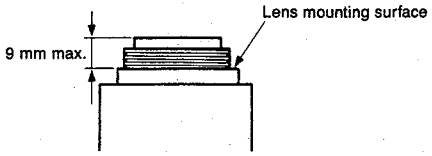
Switch	Settings	Factory setting
AGC	ON OFF (gain: 0 dB)	ON
CCD IRIS*	ON OFF	ON
SHUTTER	(only effective when CCD IRIS is off) 0: 1/60 s (UC) 1/50 s (EK) 1: 1/100 s (UC) 1/120 s (EK) 2: 1/250 s 3: 1/500 s 4: 1/1000 s 5: 1/2000 s 6: 1/4000 s 7: 1/10000 s	0

3 Replace the upper cover on the camera body.

* CCD IRIS function. When using a manual iris lens, this function automatically adjusts the shutter speed to maintain a suitable exposure level. Turn this switch off when using an auto-iris lens.

1-5. MOUNTING THE LENS

Suitable lenses
The lens must be a C mount type, and the screw thread must not project more than 9 mm ($^3/_8$ inches) from the lens mounting surface.

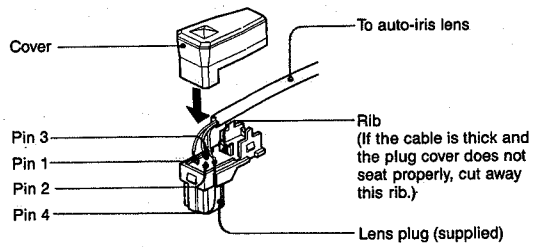


This camera uses a 1/2-inch CCD, so the lens should be for use with this size of CCD. In particular, if used with a lens for a 2/3-inch CCD the angle of view will be different.

Plug fitting for an auto-iris lens
The camera is supplied with a plug to fit the LENS connector. To connect an auto-iris lens, first replace the plug on the lens cable with the plug supplied.

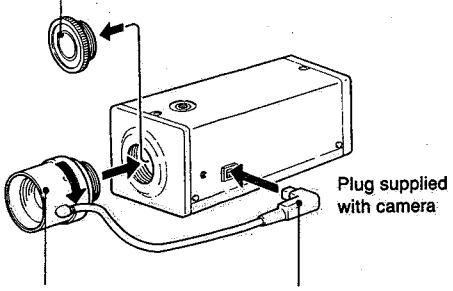
1 Solder the lens cable wires to the pins on the plug supplied; apply heat after putting heat shrink sleeving on the wires. The pin assignment is as follows.
Pin 1: Power supply (+9 V DC, 50 mA)
Pin 2: Unused
Pin 3: Video signal output (for auto-iris control; 0.7 Vp-p, 40 k ohms, no synchronizing signal)
Pin 4: Ground
(Refer to the operation manual for the lens to determine the cable color coding.)

2 Put the cover on the plug.



Fitting the lens
When using an auto-iris lens, fit it as follows. For a manual iris lens, omit step 3.

1 Unscrew the lens mount cap.



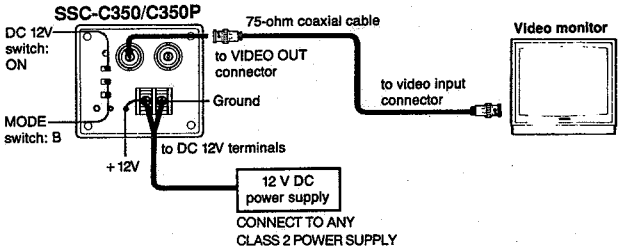
2 Screw in the lens. **3** Plug in the lens cable.

1-6. CONNECTIONS

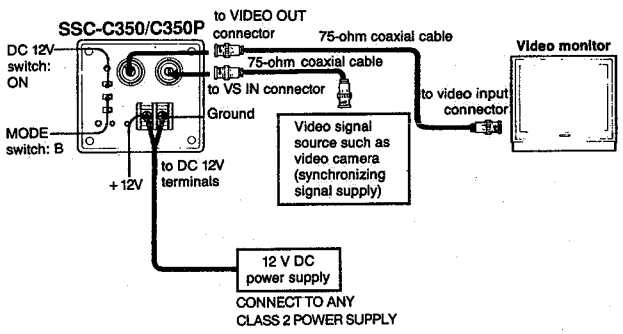
Connecting to a 12 V DC Power Supply

Set the MODE switch to B, connect the power supply, then turn the DC 12V switch on.

Operating with an internal synchronizing signal



Operating with an external synchronizing signal



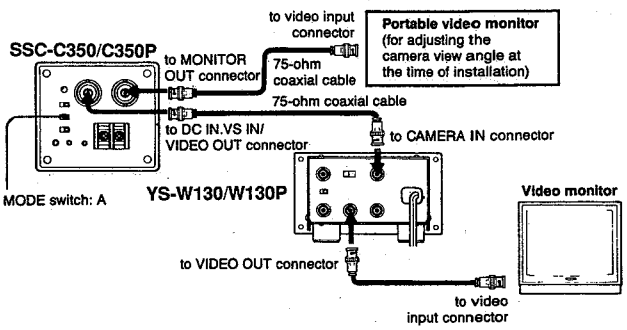
Connecting to a YS-W130/W130P Camera Adaptor (Not Supplied) (Combined Power Cable)

The following table gives the maximum lengths of the 75-ohm coaxial cable.

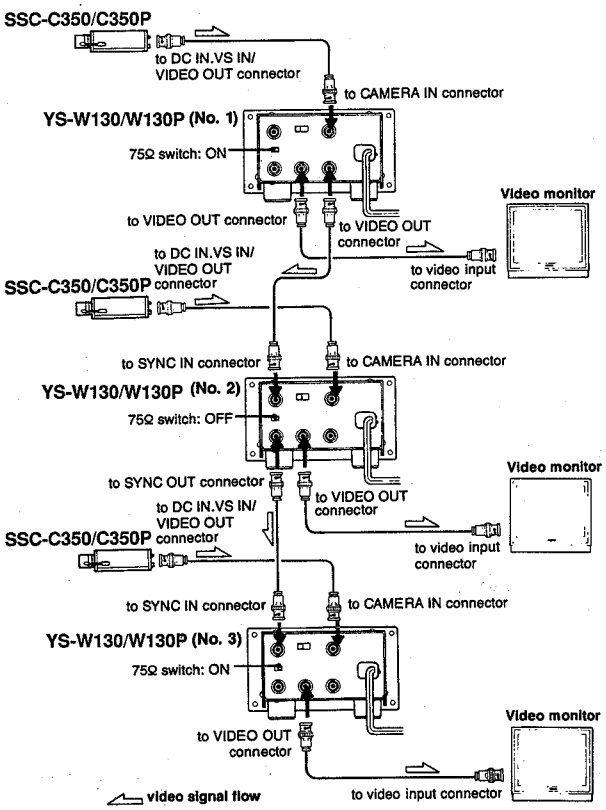
Cable type	RG-59B/U (3C-2V)	RG-6A/U (5C-2V)	RG-11A/U (7C-2V)
Maximum cable length	300 m (984 ft)	500 m (1640 ft)	600 m (1968 ft)

Set the MODE switch to A, make the connections, then turn on the POWER switch on the YS-W130/W130P camera adaptor.

Using a single camera


SSC-C350/C350P
MODE switch: A
to MONITOR OUT connector
to video input connector
75-ohm coaxial cable
75-ohm coaxial cable
to DC IN.VS IN/ VIDEO OUT connector
YS-W130/W130P
to CAMERA IN connector
Portable video monitor (for adjusting the camera view angle at the time of installation)
Video monitor
to VIDEO OUT connector
to video input connector

Using a number of synchronized cameras
The output video signal of one camera can be used for synchronizing the other cameras.

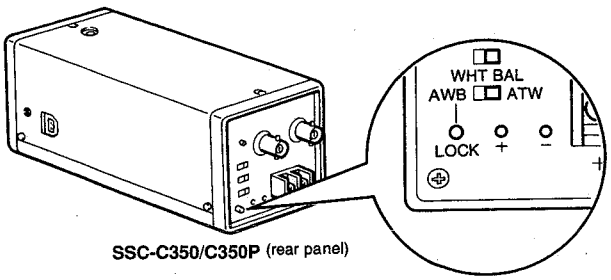


1-7. WHITE BALANCE ADJUSTMENT

After fitting the lens, and making all the installation connections, use a monitor to check the picture and set the white balance as described below. Note that the unit is shipped with the white balance switch set to ATW.

AWB (Automatic White Balance) mode:
This mode is appropriate when lighting conditions are more or less constant.
Point the camera at a white object so that the monitor screen is as far as possible all white, then press the LOCK button. This will calculate the current white balance setting and store it indefinitely in memory. Thus there is no need to readjust the white balance after the power is turned off and on again.

ATW (Automatic Tracing White Balance) mode:
In this mode the camera continuously adjusts the white balance according to the changing lighting conditions.

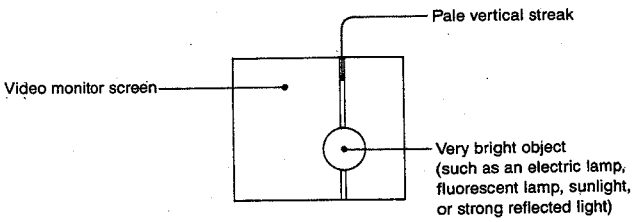


SSC-C350/C350P (rear panel)

1-8. CCD CHARACTERISTICS

The following conditions that may be observed when using a CCD camera are not associated with any fault of the camera.

Vertical smear
This phenomenon occurs when shooting a very bright object.


Pale vertical streak
Video monitor screen
Very bright object (such as an electric lamp, fluorescent lamp, sunlight, or strong reflected light)

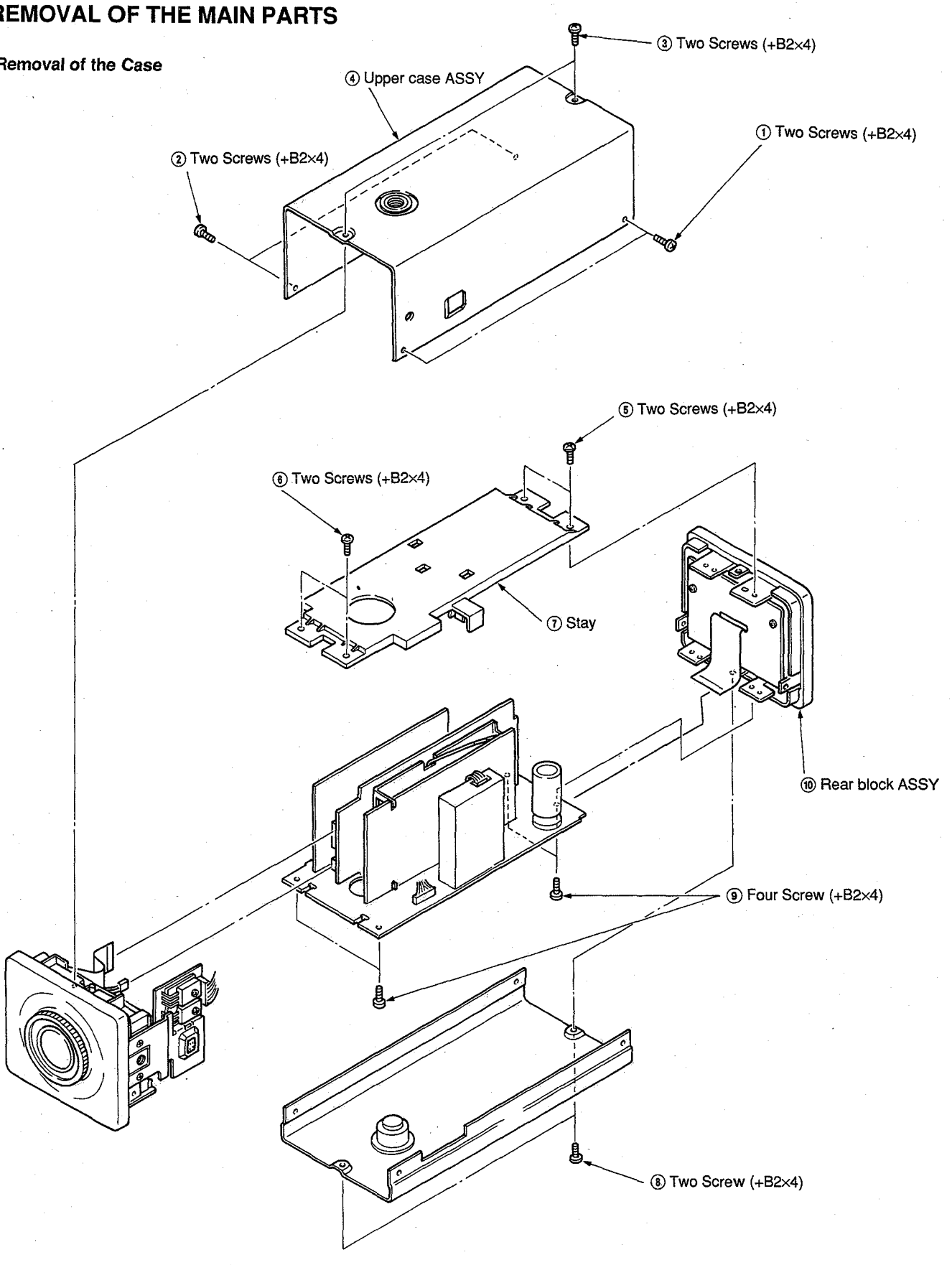
Patterned noise
This is a fixed pattern which may appear over the entire monitor screen when the camera is operated at a high temperature.

Wavy picture
When shooting stripes, straight lines, or similar patterns, the image on the screen may appear jagged.

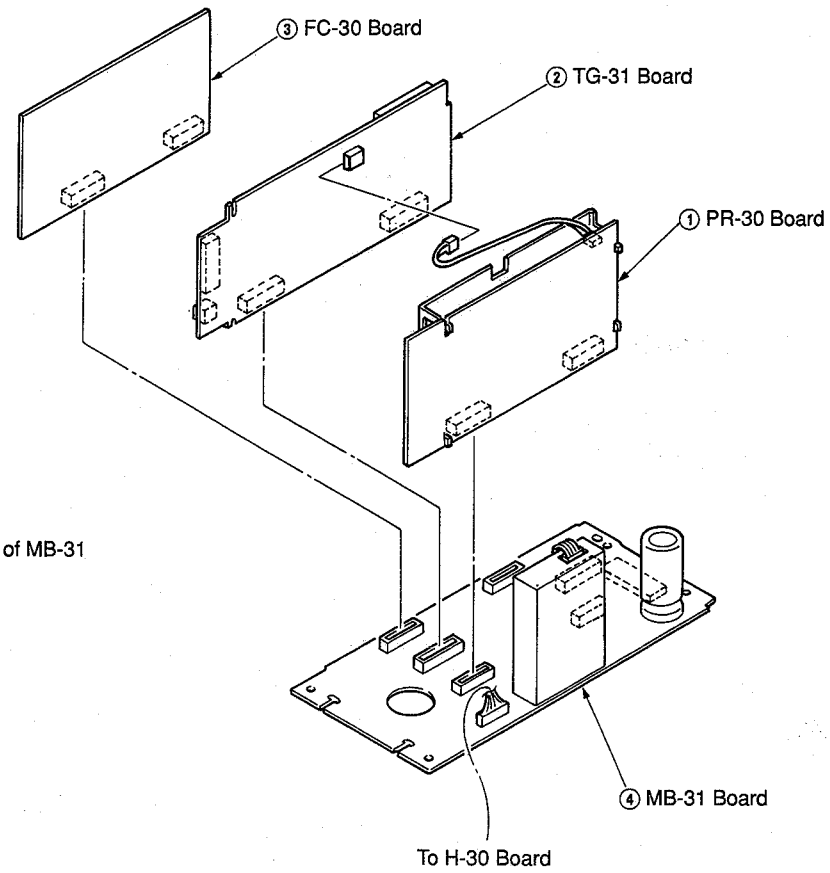
SECTION 2
SERVICE INFORMATION

2-1. REMOVAL OF THE MAIN PARTS

2-1-1. Removal of the Case

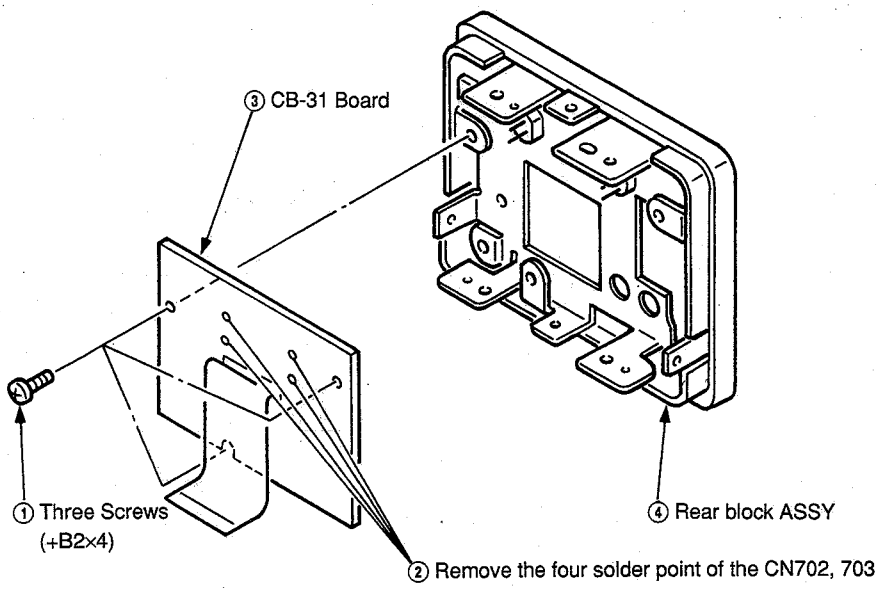


2-1-2. Removal of the PR-30, TG-31, FC-30 Boards

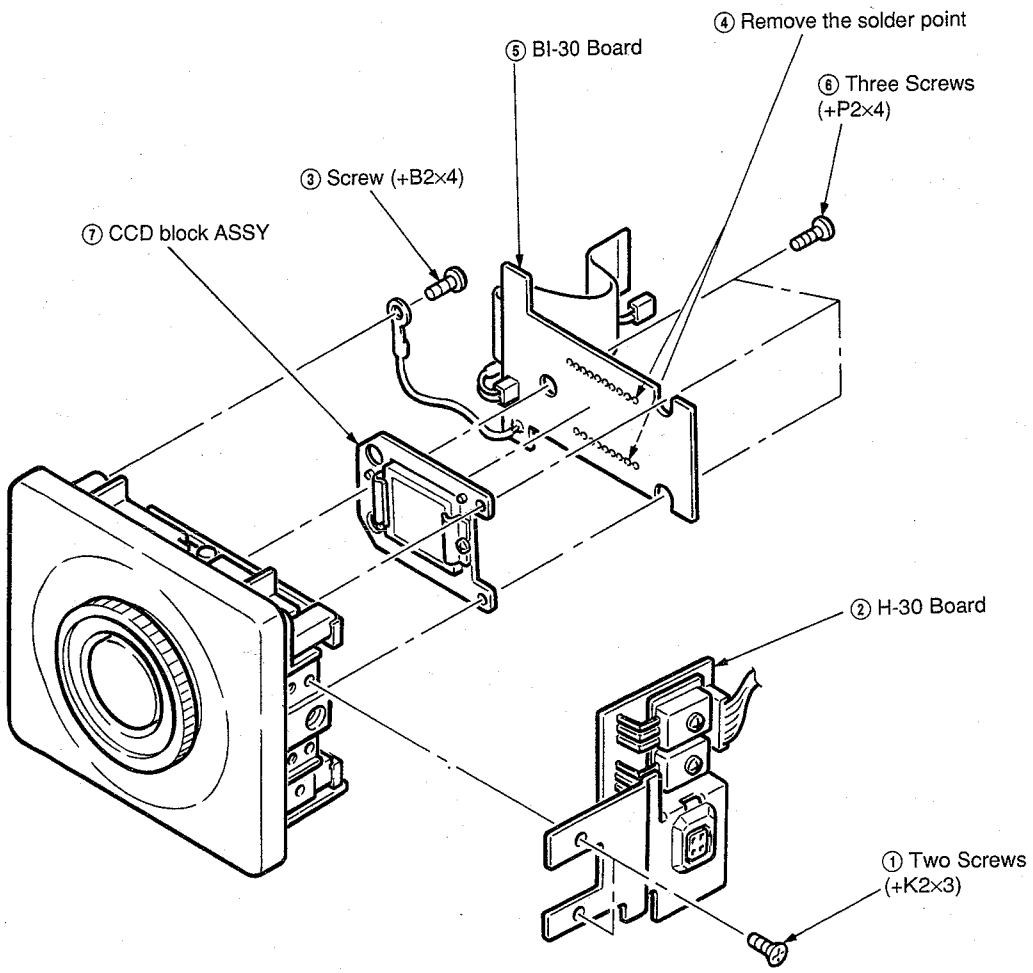


Note:
When mounting, hold the bottom of MB-31 board and securely insert it.

2-1-3. Removal of the CB-31 Board

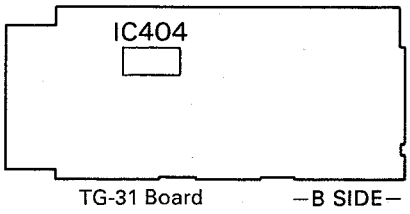


2-1-4. Removal of the CCD Block Assy

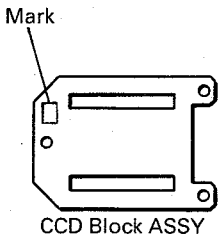


2-2. REPLACEMENT OF CCD BLOCK

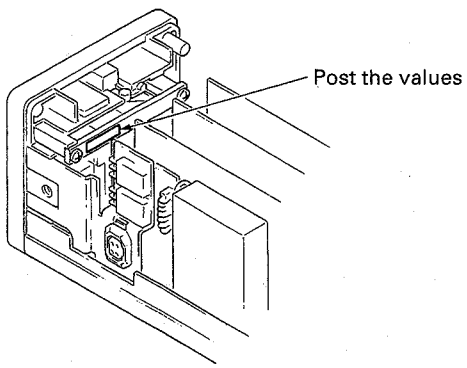
When the ROM IC for compensation is supplied for the CCD block ASSY for repair, replace the ROM IC together with the CCD block. Mount the ROM IC on the side B of the TG-31 board as the IC404. If the IC404 is mounted on the TG-31 board when the ROM IC is not supplied, remove the IC404.



Each CCD's own values of the PGLL and VSUB are required for the adjustment. These values are shown at the back of the CCD imager, and posted in the CCD Bracket of the CCD block ASSY for repair.



Post the values to the front block ASSY before soldering the BI-30 board on the CCD block ASSY.



The factory-set values of the CCD imager are pasted in the front block ASSY in the same way.

2-3. REPLACEMENT OF TG-31 BOARD

The IC404 (the ROM IC for CCD compensation) is not mounted on the TG-31 board for repair.
If the IC404 is mounted on the TG-31 board before replacement, remove the IC404 and re-mount on the replaced TG-31 board. If the IC404 is not mounted before replacement, it is not required to be mounted.

SECTION 3
THEORY OF OPERATION

3-1. BI-30 BOARD

The BI-30 board has the CCD imager which changes light into electric signals. On the CCD chip, 271,185 [320,589] photosensors are arranged in 537 horizontally and 505 [597] vertically. Among them, 250,920 [291,000] are effective picture elements arranged in 510 [500] horizontally and 492 [582] vertically.

The incident ray is converted into charge according to the light intensity in the photosensor block, read from the photosensors to the transfer block, and transferred successively to the output block.

The transfer block has two parts; the vertical transfer block and the horizontal transfer block.
The charge converted by the photosensors is transferred for every field to the vertical block next to each photosensor. The charge which is transferred to each vertical transfer block is transferred in a vertical direction in the vertical transfer block V1, V2, V3 and V4, and transferred to the progressive horizontal transfer block.
The horizontal transfer block transfers the charge in the horizontal transfer clock H1 and H2 in a horizontal direction to the output block.

The condenser in the output block converts the charge into the voltage signal, and the signal is output from the IC101. Then it goes through the Q101 buffer and is transferred to the TG-31 board.

Note: The figures in [ ] show the SSC-C350P.

3-2. TG-31 BOARD

The board has the following blocks.
① Sample and Hold/AGC
② Timing Signal Generation for CCD drive
③ CCD Vertical Transfer Clock Driver
④ SYNC Signal Generation
⑤ VCO for External SYNC
⑥ External SYNC
⑦ External SYNC Horizontal Phase Adjustment
⑧ V SUB Voltage Supply/CCD IRIS Circuit
⑨ IRIS/AGC
⑩ 4 fsc Generation Circuit

① Sample and Hold/AGC
The signal output from the CCD imager is branched into the DATA signal and PG signal, and both undergo sample and hold in each timing and signal separation.
The DATA and PG signals input to the IC401 both undergo sample and hold by the sample and hold pulse XSHP and XSHD. The PG signal undergoes sample and hold three times in the order of XSHP, XSHD and XSHP. The DATA signal undergoes it twice in the order of XSHD and XSHP. The signal separation is executed according to the difference between the DATA and PG signals. The separated signals are input in the AGC amplifier and detected by the detection circuit installed to the IC401 to keep the value reasonable.

② Timing Signal Generator for CCD Drive
Inputting the HD and VD pulses of the 28 MHz basic clock oscillation circuit output and the SYNC signal generator (IC406) makes the IC405 generate the clock, sample and hold, and clamp pulse necessary for CCD drive.

- CL : 28 MHz basic clock ÷2
- H1, H2 : H register drive pulse for CCD imager
- XV1, XV2, XV3, XV4 : V register drive pulse for CCD imager (Output to the BI-30 board through the drive circuit of IC 403 with XSGI and XSG2)
- PG : Pre-charge gate pulse
- CLP1, CLP2, CLP3, CLP4 : Various clamp pulse
- XSHP, XSHD : Pulse for signal separation sample and hold
- XSP1, XSP2 : Pulse for color separation sample and hold
- XDL1, XDL2 : Pulse for Y signal recomposition sample and hold
- XDL1, XDL2 : CCD 1H DL drive pulse for color signal

The above clock or pulses are output. Also, the charge discard pulse X SUB for shutter speed control is output from this IC.

③ CCD Vertical Transfer Clock Driver
Drive the CCD imager Vregister drive pulse. This IC drives the following pulses; XV1, XV2, XV3, XV4, XSG1, XSG2 (all output from the IC405), and the charge discard pulse X SUB.

④ SYNC Signal Generation
Inputting the CL signal makes the IC406 generate the various timing signals necessary for making the video signals.

- SYNC : Composite SYNC signal
- HD, VD : Horizontal or Vertical SYNC signal
- BF : Burst Flag signal
- BLK : Blanking signal
- FLD : Field signal

⑤ VCO for External Synchronism
The LC-31 board generates the 28 MHz basic clock necessary for external synchronism, and it has the following input and output.

- Oscillation ON/OFF control input
- Oscillation frequency control input
- 28 MHz basic clock output

⑥ External Synchronism
The followings make the signals necessary for external synchronism; Q408, Q409, Q410,Q411, Q413, Q414, IC411, IC412, IC413 and IC415.
The Q408, Q409, Q410, Q411, Q413 and Q414 execute the synchronizing separation of the external SYNC signal, and the IC412 and IC413 produce the VD and HD pulses. The VD pulse resets the SYNC signal generator (IC406), and the HD pulse executes the phase comparison at the HD output of the SYNC signal generator (IC406) and the IC411.
The phase comparison output is smoothed by the LPF and becomes the oscillation frequency control input of the LC-31 board.

⑦ External Synchronism Horizontal Phase Adjustment
The IC412 and IC416 adjust the horizontal phase at external synchronism. The microcomputer on the FC-30 board executes the adjustment operated by the SW701 and SW702 on the CB-31 board.

⑧ V SUB Voltage Supply / CCD IRIS Circuit
This circuit supplies the specified voltage to the overflow drain of the CCD imager. The Q401 and Q402 are regulators whose standard voltage is V SUB control voltage.
The 12 Ch D/A converter (IC504) output on the FC-30 board sets the V SUB control voltage so that the overflow drain voltage of the CCD imager is the standard voltage. The IC408 produces the charge discard pulse for shutter speed control from the CCD IRIS control signal produced by the FC-30 board and from the X SUB signal output by the IC405.

⑨ IRIS/AGC
The output for the IRIS detection is output from the IC401 ⑰ PIN to the H-30 board as the video signal (No SYNC signal). The circuit centering on the Q405 is the AGC detection circuit, and composes the AGC group with the operational amplifier inside the IC401.

⑩ 4 fsc Generation Circuit
The IC414 of the SSC-C350 produces 4 fsc by dividing the frequency of the 28 MHz basic clock oscillation circuit output into two, and outputs to the PR-30 board.
The X401 and IC405 etc. of the SSC-C350P compose the PLL for the 4 fsc generation and output to the PR-30 board. Also, the CT451 can execute fine adjustment.

3-3. PR-30 BOARD

(1) Chroma Signal Matrix Circuit

Separate the C0 signal (S2-S1) and Y0 signal (S2+S1) from the S1 and S2 signals. The C0 signal is a line transfer signal of the 2R-G signal and—(2B-G) signal, and these two signals are necessary simultaneously to compose the RGB signal. Therefore, the 1H-delayed C1 signal is produced. The C0 signal is output from the IC301 ㊻ PIN in reverse polarity, and then goes through the IC303. After that, it is input to the IC301 ㊽ PIN through the buffer of the Q304, and output to the RGB matrix circuit through the gain control amplifier. In the gain control circuit, the voltage of the IC301 ㊼ PIN sets the C1 signal and C0 signal in an equal level. The drive clocks of the CCD 1H-delay line are XDL1 and XDL2, whose frequency is 2 fsc.
Three lines are necessary to produce the V aperture signal, so the Y1 and Y2 signals are produced by delaying the Y0 signal for 1H and 2H respectively.
Also, the Y0 and Y1 signals are used as the Y signal for the RGB matrix.

The Y0 signal is output from the IC301 ㊷ PIN in straight polarity. Then the Y0 signal is input to the IC303 ③ PIN, and 1H-delayed by the CCD 1H-delay line, then becomes the Y1 signal. The Y1 signal is output from the IC 303 ⑪ PIN in straight polarity. Then it is input to the IC 301 ㊺ PIN through the buffer of the Q303, added the Y0 signal through the gain control amplifier, and output to the matrix circuit.
In the gain control circuit, the voltage of the IC301 ㊹ PIN sets the Y1 and Y0 signals in an equal level.
The Y2 signal is produced by delaying the Y1 signal for another 1H in the same way.
The RGB signal is produced from the 2R-G signal, —(2B-G) signal, and Y signal. The white balance circuit processes the RGB signal to balance white according to the color temperature of the subject.

The R and B signals are input to the variable gain amplifier, and the G signal is input to the fixed gain amplifier. The gains of the variable gain amplifier are respectively set by the IC301 ㊲ PIN voltage (R GAIN) and ㊵ PIN voltage (B GAIN) to the color temperature 3200K. Then the R and B signals are input to the second variable gain amplifier, and the G signal to the second fixed gain amplifier. These second variable gain amplifiers are controlled by the IC301 ㊳ PIN voltage (R CONT) and ㊴ PIN voltage (B CONT). After converted by the 12Ch D/A converter IC305, these voltages are controlled by the microcomputer on the FC-30 board. Each signal of the RGB is processed by the γ compensation circuit and sent to the color difference matrix circuit.
The color difference signal R-Y and B-Y are added the hue compensation signal R-Y HUE and B-Y HUE respectively, and output to the IC301 ⑳ PIN and ⑲ PIN respectively.

(2) Y Signal Process Circuit

The YH signal output from the TG-31 board goes through the FL301 and FL302, and input to the IC301 ㊹ PIN. The Y signal is processed in the γ compensation circuit and sent to the YH signal 1H-delay circuit. The YH signal 1H-delay circuit centering on the IC304 is installed to compensate the lag of chroma signal line. The YH signal output from the IC301 ④ PIN is input to the IC304 ① PIN. Here, the YH signal is designed to be 1H-delayed, after it goes through the CCD delay line and the installed low-pass filter FL303.
Next, the YH signal is input again to the IC301 ② PIN and output from the ⑤ PIN after the gain adjustment. After that, it goes through the delay line FL304 for the Y/C phase equalization and is input to the encoder IC302.

(3) Encoder Circuit

The chroma signals output to the IC301 ⑲ ⑳ PIN are input to the IC302 ㊼ ① PIN. Then the modulated R-Y and B-Y signals are added, and output from the IC302 ⑯ PIN. Next, they go through the bandpass filter FL306 and are input again to the IC302 ⑱ PIN. After that, they are mixed with the luminance signal and output from the ㉑ PIN as the composite video signal. Regarding the luminance signal, the YH signal input to the IC302 ㉟ PIN is added the H aperture compensation signal and the V aperture compensation signal, and output to the next stage.
The delay line to produce the H aperture compensation signal is the FL304. After the level adjustment by the voltage of the IC302 ㊱ PIN, this signal is noise-sliced and added to the Y signal. Also, regarding the low illumination subject, the voltage of the IC302 ㊱ PIN is raised by the AGC CONT voltage, which lowers the level of the H aperture compensation signal and reduces the noise. The V aperture compensation signal produced by the IC301 goes through the delay line DL305 for the phase equalization to the Y signal, and is added to the Y signal in the IC302.

3-4. FC-30 BOARD

This board deal with the function system

① Electronic Shutter/CCD IRIS Circuit
In the electronic shutter circuit, the microcomputer IC505 reads the setting of the SW501 (10 position rotary switch), and outputs the ED0, ED1, ED2 and SMD2 signals to the IC405 on the TG-31 board through the MB-31 board.
In the CCD IRIS circuit, the microcomputer IC505 changes the electronic-shutter speed automatically and successively according to the subject illumination. The IC508, IC509, IC510, Q509 and Q510 produce a saw-tooth wave of 1 field period. On the other hand, the IC505 produces the shutter-speed-control voltage based on the IRIS signal of the IC401. The IC502 compares the both signals, produces the SWND signal whose pulse length accords with the subject illumination, and outputs it to the TG-31 board.

② White Balance Detection Circuit
In white balance, the IC505 outputs the R CONT and B CONT signals operated by the SW704 on the CB-31 board (AWB, ATW), and the IC302 on the PR-30 board is controlled. In ATW, the white balance detection circuit composed of IC501, Q501, Q502 and Q503 is used. In the ATW mode, the RGB signal output from the PR-30 board is detected, and the operation is continued to accord the G signal with the R and B signals.
Also, in the AWB mode, the same operation as ATW is executed by pushing the SW703 on the CB-31 board, and the non-volatile memory inside the IC505 keeps the data after the adjustment.

③ Microcomputer Circuit

The microcomputer circuit deals with the adjustment of the signal process system in addition to the above ① and ② functions.
The IC504 and IC305 (PR-30 board) are the 12Ch D/A converters (Electronic volumes), and output the 12Ch analog voltage respectively according to the data set by the IC505. The IC505 is connected with the adjustment fixture by the CN502, then the data specified by the fixture is set into the IC504 and IC305 through the IC505 so that they output the analog voltage for adjustment.

3-5. MB-31 BOARD

This board has the DC/DC converter which supplies the DC power necessary for each board, the overlay SYNC signal separation circuit, the external SYNC signal selection circuit, and the overlay power supply regulator circuit.
The circuit centering on the Q201 and Q202 is the overlay SYNC signal separation circuit. The signal output from this circuit and the external SYNC signal input from the CN703 on the CB-31 board are sent to the IC201. The IC201 selects the external SYNC signal according to the SW706 on the CB-31 board. The Q203, Q204 and Q603 on the H board compose the regulator of the overlay power supply.
Also, this board functions as a relay board between boards.

3-6. H BOARD

This board has the regulator for the power supply overlay, the power supply regulator and connector for the automatic iris lens.

3-7. CB-31 BOARD

This board has various input or output connectors and control switches.

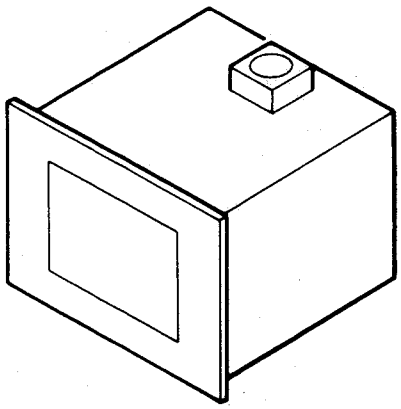
SECTION 4
ADJUSTMENT

4-1. PREPARATION

4-1-1. Adjustment Fixture and Equipment

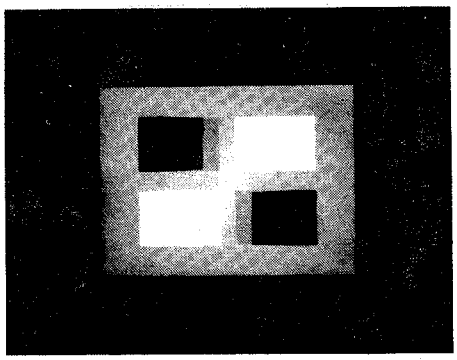
J-6029-140-A	Pattern Box PTB-500

• Light source for test chart AC 90 ~ 240 V

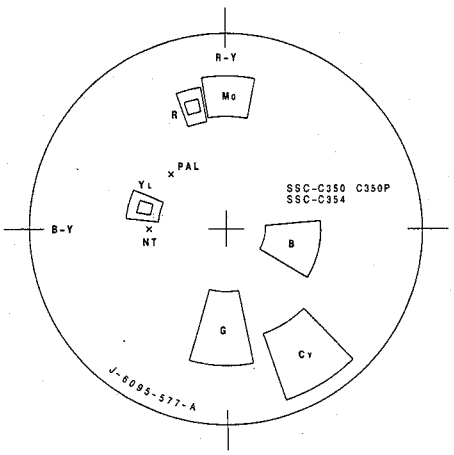


J-6026-130-B	Gray Scale Chart

• For video level and gamma adjustment

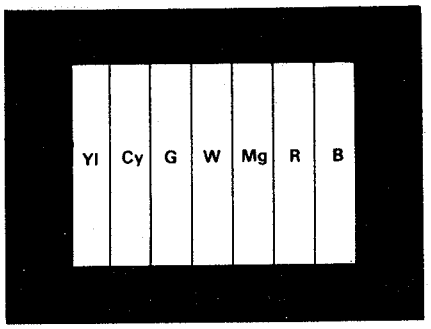


J-6095-577-A	Vectorscope Scale



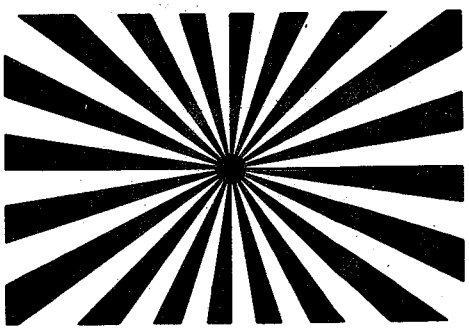
J-6020-250-A	Color Bar Chart

• For color adjustment

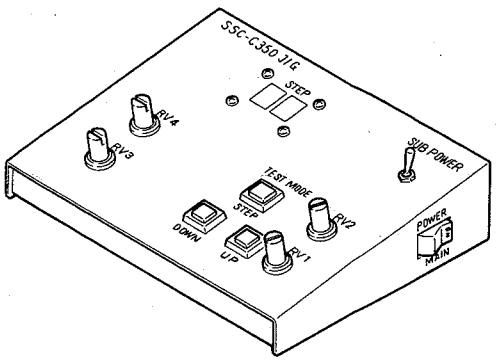


J-6024-340-B	Siemens Star Chart

• For back forcus adjustment

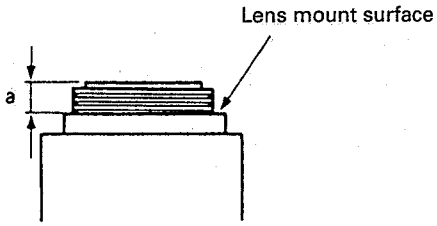


J-6095-340-A	EVR Adjustment Fixture



Commercial measuring equipment and fixture

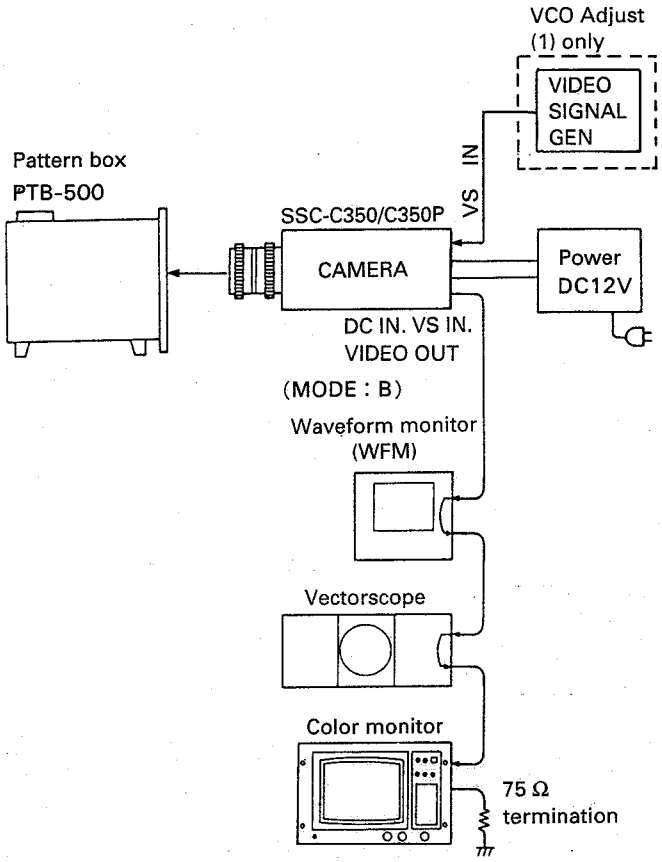
- Dual Trace Oscilloscope
- Vectorscope
- Wareform Monitor (WFM)
- Frequency Counter
- Digital Voltmeter
- Color Monitor
- Lens (1/2 inch C mount and manual iris type)



a: should be under 9 mm

- ND Filter
  ND 25 (25%) 50 mm Square made by Kenko
  (Use 2 pcs of ND 25 for 6.25%)

4-1-2. Connection for Adjustment

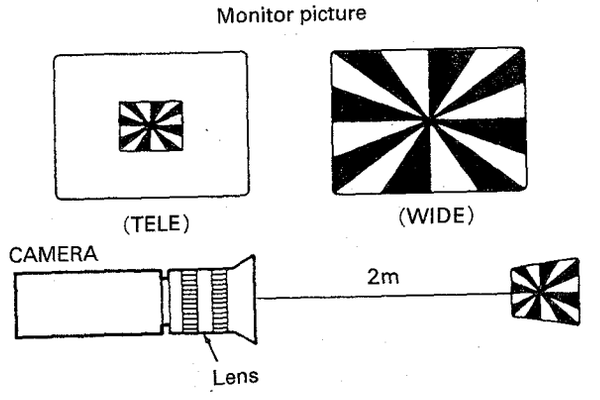


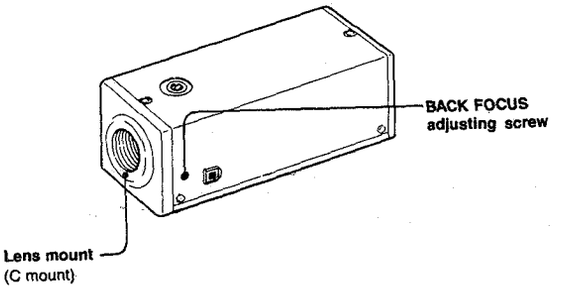
Note:
To adjust exactly, use the manual iris lens of a C mount type.

4-2. MECHANICAL BACK FOCUS ADJUSTMENT

Subject: Siemens Star chart
Lens iris: Open
Equipment: Color monitor
Test point: VIDEO OUT
Adjust:

1. Set the zoom control at TELE so as to obtain the maximum multiplication factor. Optically focus the image so as to obtain the maximum resolution.
2. Set the zoom control at WIDE so as to obtain the minimum multiplication factor. Do not optically focus the image at this time.
   Check whether the image is focused, on the monitor while turning the zoom control from TELE to WIDE. If the image is not focused, properly set at back focus as follows.
3. When the zooming mechanism is set at WIDE, turn the back focus adjusting screw.
4. Repeat step 1 through 3 several times.



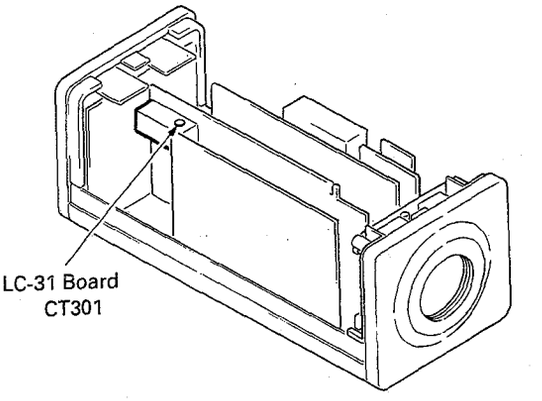


BACK FOCUS adjusting screw

4-3. VCO ADJUSTMENT

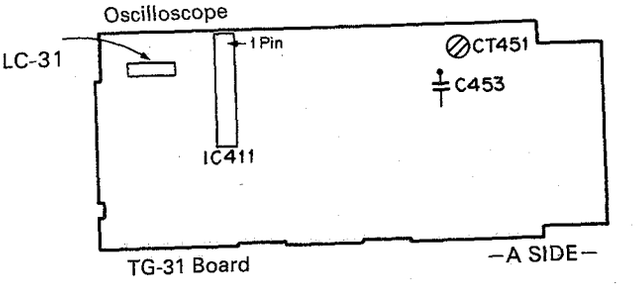
4-3-1. VCO Adjustment (1)

Object: Close 'C'
Equipment: Oscilloscope (DC 500 mV 0.2 μS)
Measurement point: TG-31 Board IC411 1 pin
Adjustment point: LC-31 Board CT801
Specification: 2.9 ±0.1 V
Adjustment method: Perform adjustment after inputting the external sync singnal to the VS IN.



4-3-2. VCO Adjustment (2) [SSC-C350P only]

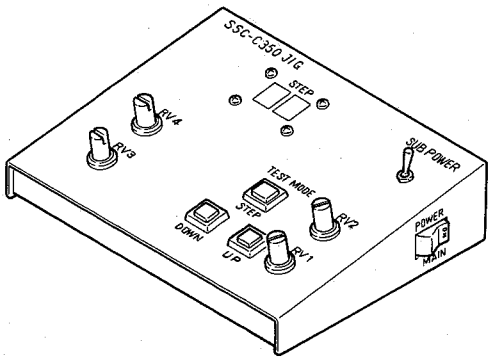
Object: Close 'C'
Equipment: Oscilloscope (DC 500 mV 0.2 μS)
Measurement point: TG-31 Board C453
Adjustment point: TG-31 Board CT451
Specification: 4.1 ±0.1 V
Adjustment method: Remove the FC-30 Board before adjustment



4-4. SIGNAL PROCESS ADJUSTMENT

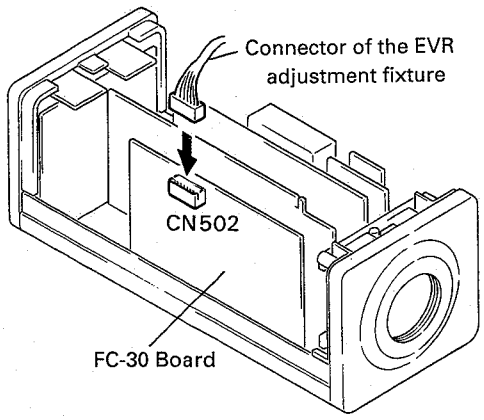
[EVR Adjustment Fixture]

The SSC-C350/C350P adjusts electricity for signal process by the EVR (Electric volume).
The special EVR adjustment fixture is required for the adjustment. The adjustment data is varied by the fixture, and the values are written into the memory of camera.



- Procedure

1) Set the MAIN POWER and SUB POWER switches of the EVR adjustment fixture to OFF, and connect the connector of the fixture to the CN502 of the FC-30 board.



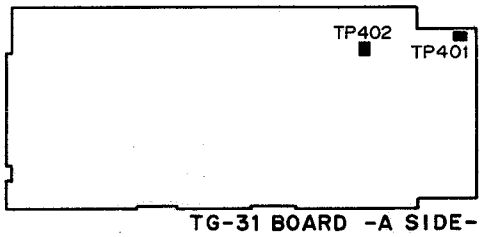
2) Set the MAIN POWER switch of the fixture to ON, and then set the camera power to ON. The STEP value of the fixture becomes "00".

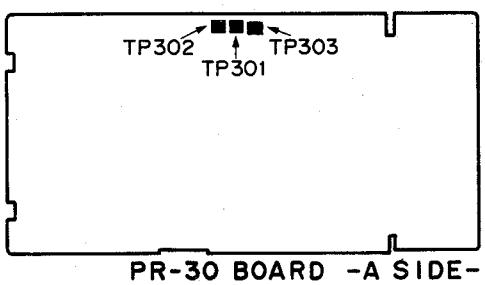
3) Set the SUB POWER switch of the fixture to ON, and the STEP value becomes "01" and the fixture is in the adjustment mode. The STEP value is varied by operating the STEP UP and STEP DOWN buttons. After the value comes to "14", it returns to "01".

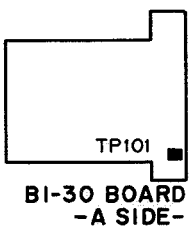
4) The adjustment is executed by operating the RV1 – RV4 with the STEP value in accord with the adjustment item number. During the process, the adjustment data is shown in the STEP indicator in hexadecimal code.

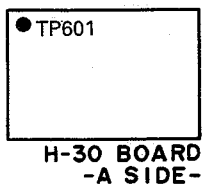
5) By setting the SUB POWER switch to OFF after the adjustment, the adjustment data is written in the camera memory.
The data cannot be written, if the MAIN POWER switch or camera power xxxxxxxxx

[Adjustment Location]





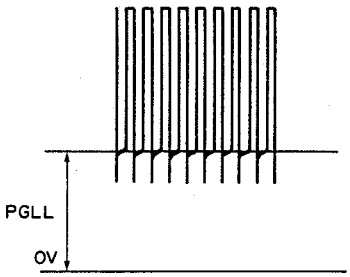




4-4-1. PGLL Adjustment

STEP No.: "01"
Object: Close 'C'
Equipment: Oscilloscope (DC 500 mV 0.2 μS)
Measurement point: TG-31 Board TP402
Adjustment point: JIG (RV1)
Specification: Set point ±0.15 V
Adjustment method: Referring to the chart, adjust to the voltage set point in accordance with the mark of the PGLL voltage (left figure of the two) posted on the metallic bar of the front block. (See page 2-4)

*MARK(L)	PGLL(V)
0	0.5
1	1.0
2	1.5
3	2.0
4	2.5
5	3.0
6	3.5
7	4.0



*MARK (L):Left figure of the two

4-4-2. V SUB Voltage Adjustment

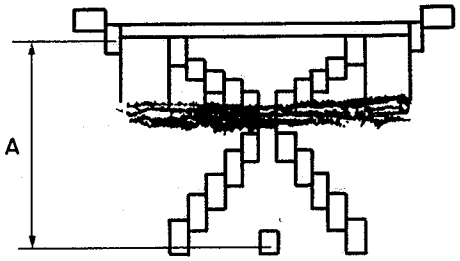
STEP No.: "02"
Object: Close 'C'
Equipment: Oscilloscope (DC 2.0 V 1mS)
Measurement point: TG-31 Board TP401
Adjustment point: JIG (RV1)
Specification:Set point ±0.15 V
Adjustment method: Referring to the chart, adjust to the voltage set point in accordance with the mark of the VSUB voltage (right figure of the two) posted on the metallic bar of the front block.(See page 2-4)

*MARK(R)	VSUB(V)	*MARK(R)	VSUB(V)
A	7.0	N	13.0
B	7.5	P	13.5
C	8.0	Q	14.0
D	8.5	R	14.5
E	9.0	S	15.0
F	9.5	T	15.5
G	10.0	U	16.0
H	10.5	V	16.5
J	11.0	W	17.0
K	11.5	X	17.5
L	12.0	Y	18.0
M	12.5	Z	18.5

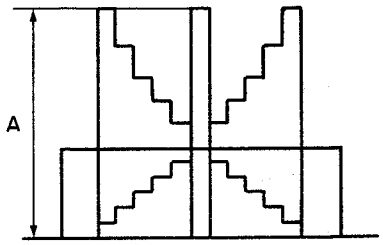
*MARK (R):Right figure of the two

4-4-3. GAIN 0 dB Adjustment

(1)
STEP No.: "03"
Object: Grayscale chart
Equipment: Oscilloscope (AC 50 mV 10 μS)
Measurement point: BI-30 Board CN101 1pin (GND: 2 pin)
Adjustment point: Lens iris
Specification: A=200 ±20 mV

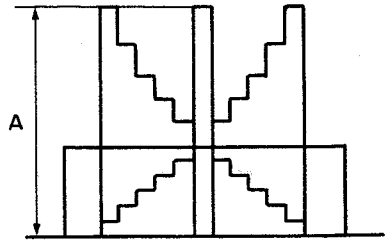


(2)
STEP No.: "03"
Object: Grayscale chart
Equipment: Oscilloscope (AC 100 mV 10 μS)
Measurement point: PR-30 Board TP303
Adjustment point: JIG (RV1)
Specification: A=500 ±30 mV



4-4-4. Auto Iris Video Level Adjustment

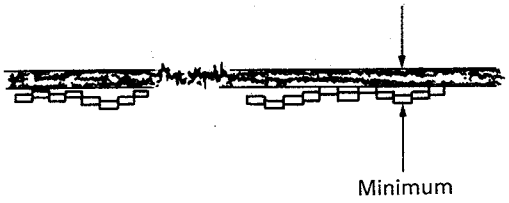
STEP No.: "04"
Object: Grayscale chart
Equipment: Oscilloscope (AC 100 mV 10μS)
Measurement point: H-30 Board TP601
Adjustment point: JIG (RV1)
Specification: 700 ±50 mV



4-4-5. Y1. Y2 GAIN Adjustment

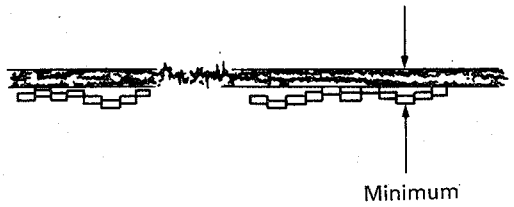
STEP No.: "05"
Object: Grayscale chart
Equipment: Oscilloscope (AC 100 mV 10μS)
Measurement point: PR-30 Board TP302
Adjustment point: JIG (RV1/RV2)
Adjustment method:

1) Turn the RV1 counterclockwise to the full.
2) Adjust the RV2 so that the waveform amplitude is minimized.
3) Adjust the RV1 so that the waveform amplitude is minimized.



4-4-6. YH GAIN Adjustment

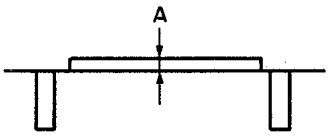
STEP No.: "06"
Object: Grayscale chart
Equipment: Oscilloscope (AC 100 mV 10μS)
Measurement point: PR-30 Board TP301
Adjustment point: JIG (RV1)
Adjustment method: Adjust the RV1 so that the waveform amplitude is minimized.

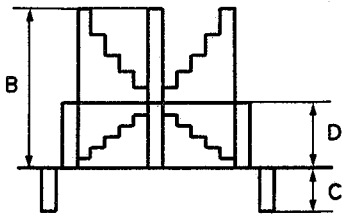


4-4-7. Pedestal Y GAIN Adjustment

STEP No.: "07"
Object: Grayscale chart
Equipment: Waveform monitor
Adjustment point: JIG (RV1/RV2)
Measurement point: VIDEO OUT
Adjustment method:

1) Put the lens cap over the lens. (Do not move the iris.)
2) Adjust the RV2 so that the pedestal level equals the adjustment value A.
3) Remove the lens cap from the lens.
4) Adjust the RV1 so that the white level equals the adjustment value B.
5) Make certain that the SYNC and gamma levels are in the range of C and D respectively.

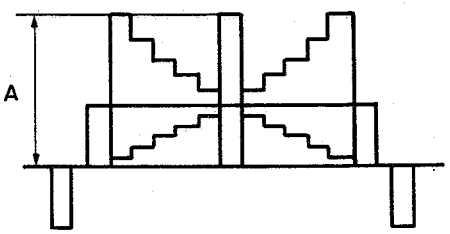




[NTSC]	[PAL]
A = 7.0 ±0.5 IRE	A = 20 ±10 mV
B = 100 ±2 IRE	B = 700 ±15 mV
C = 40 ±4 IRE	C = 300 ±30 mV
D = 50 ±5 IRE	D = 350 ±35 mV

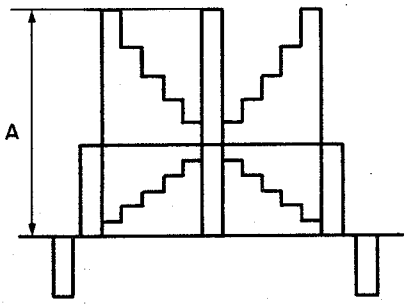
4-4-8. AGC MAX Adjustment

STEP No.: "08"
Object: Grayscale chart
Equipment: Waveform monitor
Adjustment point: JIG (RV1)
Measurement point: VIDEO OUT
Specification: A = 65 ±5 IRE [NTSC]
A = 455 ±35 mV [PAL]
Adjustment method: Install the ND filter (6.25%) to the lens before adjustment.



4-4-9. AGC Set Adjustment

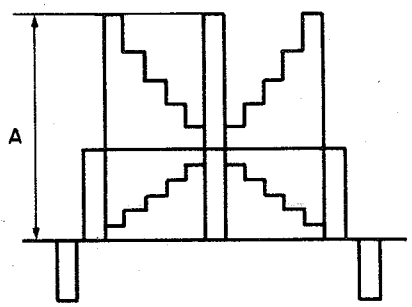
STEP No.: "09"
Object: Grayscale chart
Equipment: Waveform monitor
Adjustment point: JIG (RV1)
Measurement point: VIDEO OUT
Specification: A = 90 ±5 IRE [NTSC]
A = 630 ±35 mV [PAL]
Adjustment method: Install the ND filter (25%) to the lens before adjustment.



4-4-10. CCD IRIS Level Adjustment

STEP No.: "10"
Object: Grayscale chart
Equipment: Waveform monitor
Adjustment point: JIG (RV1)
Measurement point: VIDEO OUT
Specification: A = 95 ±5 IRE [NTSC]
A = 665 ±35 mV [PAL]
Adjustment method:

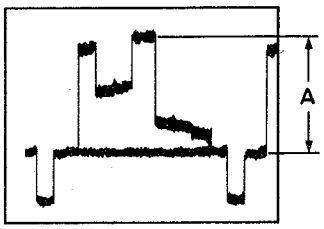
1) Set the lens iris to OPEN.
2) Turn the RV1 clockwise to the full, then gradually turn it back counterclockwise adjusting the white level to A.
3) Cover the lens with hands for a second, then take the hands off and make sure that the video white level is in the range of A.



4-4-11. C1 GAIN Adjustment

STEP No.: "11"
Object: Color-bar chart
Equipment: Waveform monitor
Adjustment point: JIG (RV1)
Measurement point: VIDEO OUT
Specification: A = 92.5 ±2.5 IRE [NTSC]
A = 650 ±15 mV [PAL]
Adjustment method:

1) Move the RV1 a little, and adjust the lens iris so that the white level of the color bar chart is A.

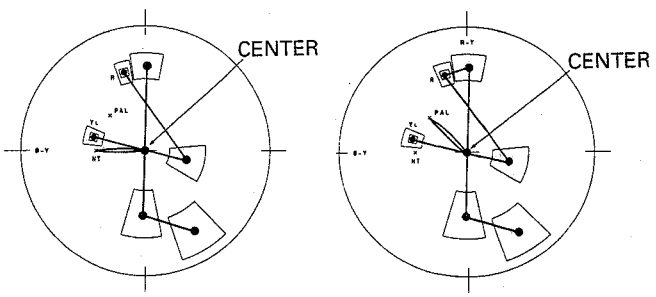


2) Adjust the RV1 so that each color becomes one beam spot on the vectorscope.

4-4-12. WB Preset Adjustment

STEP No.: "12"
Object: Color-bar chart
Equipment: Vectorscope
Measurement point: VIDEO OUT
Adjustment point: JIG (RV1/RV2)
Adjustment method: Adjust the RV1 and RV2 so that the white of the color bar chart is positioned to the vector scope center.

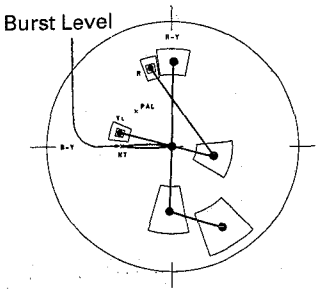
[NTSC] [PAL]



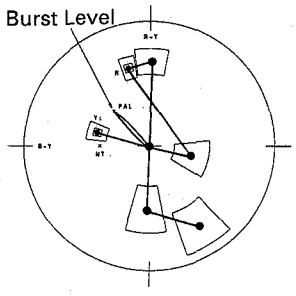
4-4-13. Burst Level Adjustment

STEP No.: "13"
Object: Color-bar chart
Equipment: Vectorscope
Measurement point: VIDEO OUT
Adjustment point: JIG (RV1)
Adjustment method: Adjust the RV1 so that the burst level equals the standard value of the vectorscope.

[NTSC]



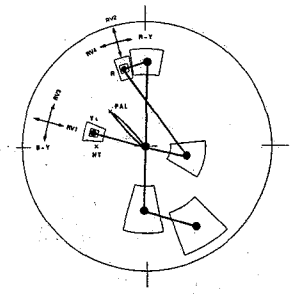
[PAL]



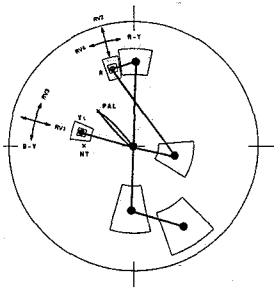
4-4-14. Hue Adjustment

STEP No.: "14"
Object: Color-bar chart
Equipment: Vectorscope
Measurement point: VIDEO OUT
Adjustment point: JIG (RV1/RV2/RV3/RV4)
Adjustment method: Adjust the RV1, RV2, RV3 and RV4 so that each color is positioned within the standard scales on the vectorscope. (Place R and YL into the inner scales.)

[NTSC]



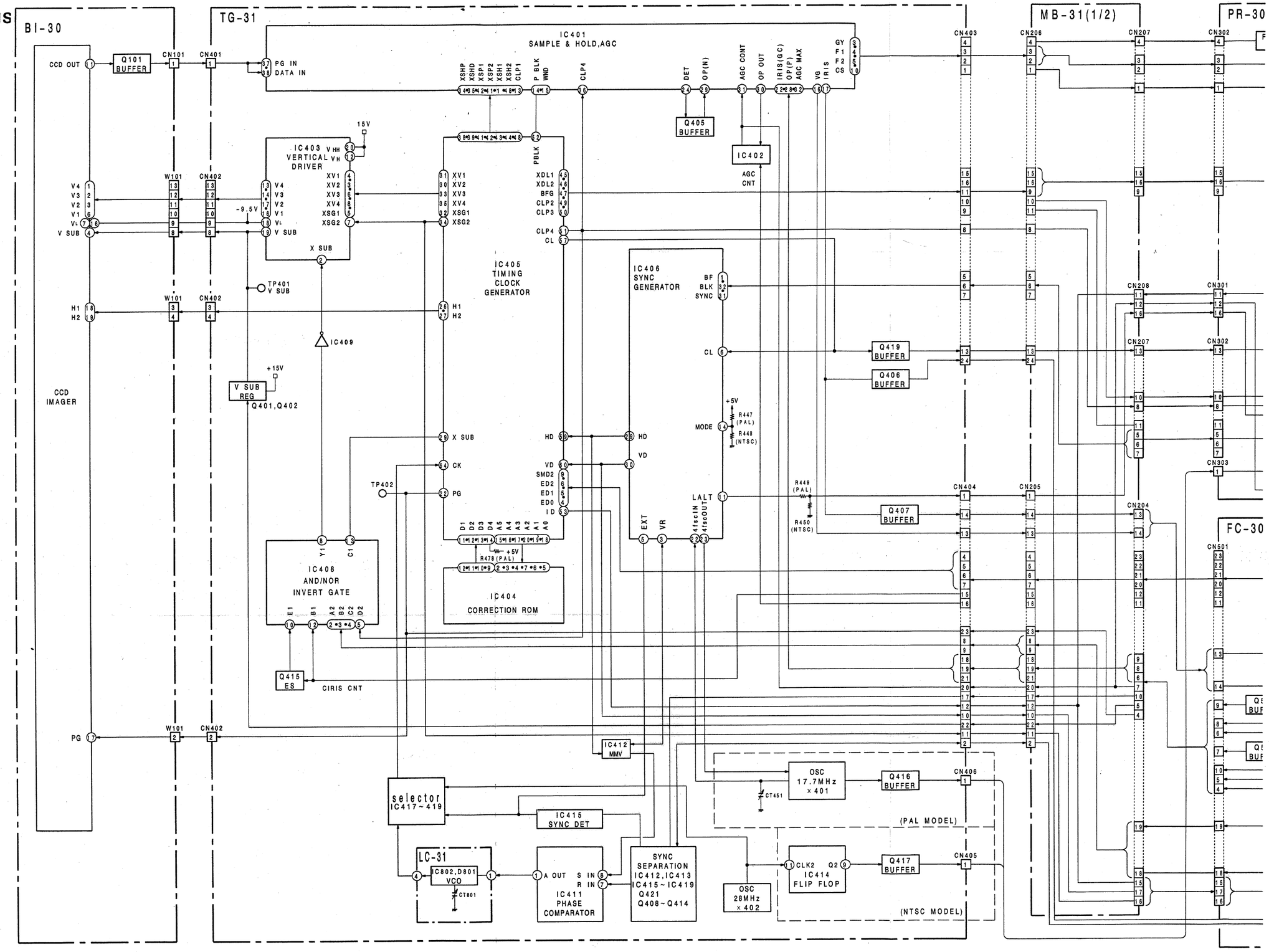
[PAL]



After adjustment, set the SUB POWER switch of the adjustment fixture to OFF.

SECTION 5. DIAGRAMS

5-1. BLOCK DIAGRAMS



5-1 5-2

SSC-C350 BLOCK

PR-30

CN207 CN302 FL301 LPF FL302 DL YHL IN S1 S2 CS IN TP TP301 Q301 BUFFER

IC303 COLOR 1H DL XDL2 XDL1 CLP3 DL C0 DL Y0 DL Y1 DL C1 DL Y1 DL Y2 Q304 BUFFER Q303 BUFFER Q302 BUFFER

IC301 PROCESS B CONT R CONT C1 GAIN Y1 GAIN Y2 GAIN YH GAIN B-Y GAIN R-Y GAIN B GAIN R GAIN R-Y HUE B-Y HUE WB-R WB-G WB-B WB-DC DL YH OUT DL YH IN VAP OUT VAP GAIN

IC305 CMOS 8BIT D/A CONV. LD CLK DI

FL303 LPF Q305 BUFFER IC304 Y 1H DL S OUT S IN CLK TP302 Q308, Q309 FL305 DL

CN208 CN301 ID CLP4 CLP2 B-Y R-Y CS YH OUT1

CN207 CN302 FL304 DL Q306 Q307

IC306 VIDEO AMP

IC302 ENCODER CLP2 CLP4 LALT BFG BF C.BLK SYNC MODE 4fSC DLD DLE SHP LEVEL YL YH IN CS AGC VIDEO OUT C IN B LEVEL SET UP Y LEVEL C OUT +5V R325 (PAL) R324 (NTSC) Q310 BUFFER FL306 BPF

CN303 CN204

CN301 CN208

CN502 +5V TMODE SDI SIO

FC-30

CN501

IC505 8BIT 1CHIP MICRO CONTROLLER SMD2 ED2 ED1 ED0 CIRIS CNT AGC CNT WB-L WB-M SFT(+) SFT(-) SLD2 SDO SCK PWM OUT IRIS A/D A/D REF SLD1 OSC2 OSC1 RESET SHT1 SHT2 SHT4 CIRIS AGC WB-B WB-G WB-R

IC502 X501 +5V IC506 RESET

IC503 Q504 CLP Q508 BUFFER Q507 BUFFER

IC504 C MOS 8BIT D/A CONVERTER A8 A5 A4 A2 A3 A6 A1 A0 A9 A11 A10

SW502 CIRIS ON/OFF AGC ON/OFF +5V

IC502 IC510 D/A

SAW TOOTH PULSE GEN IC508-510 Q509,Q510

SW501 SHUTTER

WHITE BALANCE & CIRCUIT IC501 Q501-Q503

CN503 CN203

MB-31(2/2)

CN301 CN208

OVERLAY SYNC SEP Q201,Q202

IC201 SELECTOR XCOM OX 1X

CN202 CN702

H-30

Q601, Q602 CN601 +9V (To IRIS CONNECTOR)

Q603 OVERLAY REG

CN602 CN201

PU201 DC/DC CONVERTER +5V +15V -9.5V V IN POWER CTL

CN209 Q205-Q208 POWER CTL CN202 CN702

SW705 POWER OFF ON DC POWER IN DC12V GND

D201 D202 F701 D701 REG Q203, Q204 +5V

CB-31

CN202 CN702

CN704 VIDEO OUT DC IN

CN703 MONITOR OUT GEN LOCK IN

INT

SW706 MODE SELECT OVERLAY

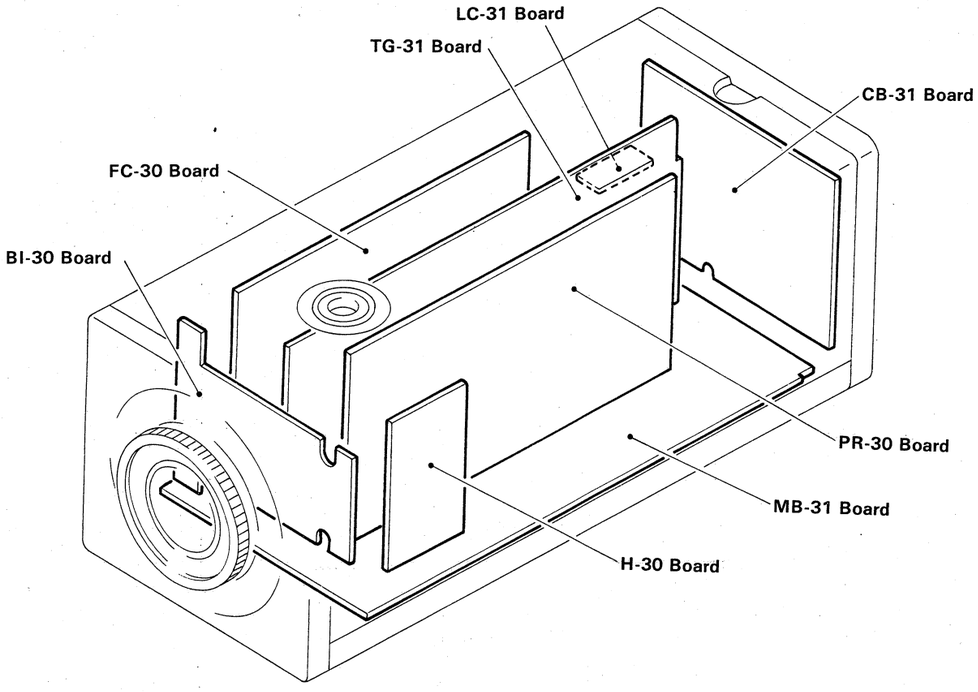
SW703 AWB LOCK

AWB ATW SW704

SW701 H.PHASE(+)

SW702 H.PHASE(-)

5-2. BOARD LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED CIRCUIT BOARDS

⚠および▒印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用して下さい。

・抵抗で指示のないものは1/10W，単位はすべてΩ。
kΩ：1000Ω，MΩ：1000kΩ
・ケミタン，タンタルを除くコンデンサーで，耐圧50V以下のものは，その耐圧を省略。単位はすべてμF(pはpF)。
・電圧値は対アース間の参考値。
（使用テスター：10MΩデジタルマルチメーター）。
・回路図上に表記された赤丸数字は，波形図のリファレンスNo.です。
・➡は，信号ライン。
・——は，GNDライン。

・波形図の測定条件

カラーバーチャート

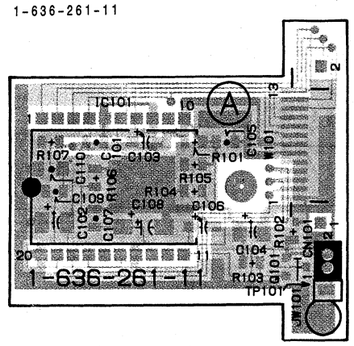
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number sprcified.

Note:
- All resistors are in ohms, 1/10 W unless otherwise noted. kΩ = 1000 Ω, MΩ = 1000 kΩ
- All capacitors are in μF unless otherwise noted. p: μμF 50 V or less are not indicated except for electrolytic and tantalums.
- Readings are taken with a 10 MΩ digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- Circled numbers are waveform references.
- ——: B + bus.
- ➡: signal path.
- **— : GND**

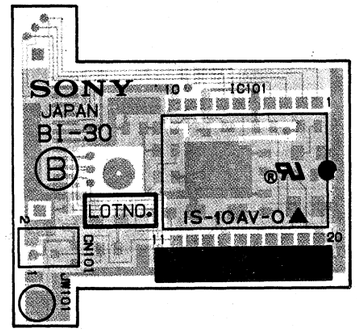
・Waveforms are measured in condition below.

color bar chart CAMERA

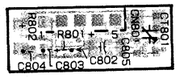
BI-30
-(A)SIDE-
1-636-261-11



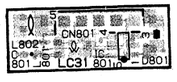
BI-30
-(B')SIDE-
1-636-261-11



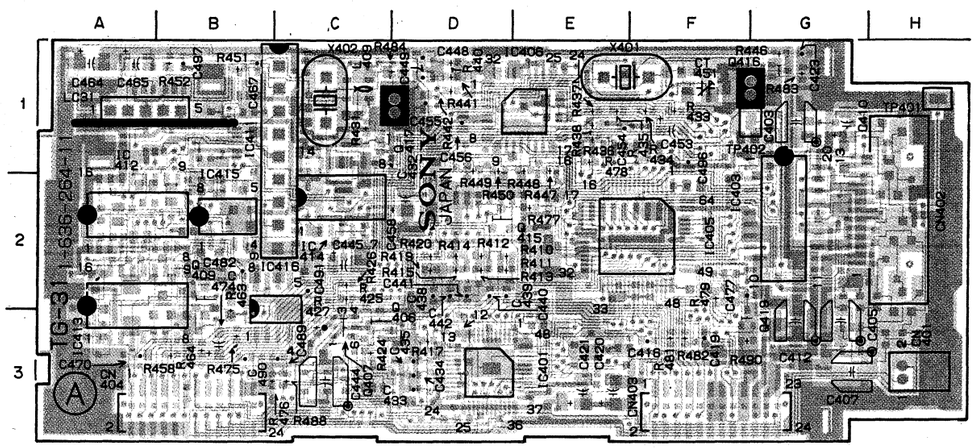
LC-31
-(A)SIDE-
1-636-417-11



LC-31
-(B)SIDE-
1-636-417-11

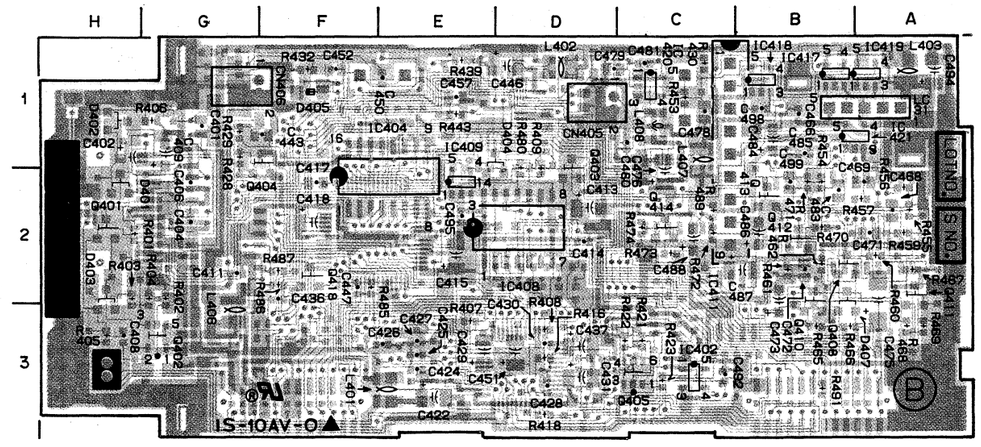


TG-31
-(A)SIDE-
1-636-264-11



IC	
IC401	E-3
IC403	F-2
IC405	F-2
IC406	D-1
IC411	B-1
IC412	A-1
IC413	A-3
IC414	C-2
IC415	B-2
IC416	B-2
TRANSISTOR	
Q406	D-2
Q407	C-3
Q409	B-2
Q415	E-2
Q417	C-1
Q419	G-3

TG-31
-(B)SIDE-
1-636-264-11



IC	
IC402	C-3
IC408	D-2
IC409	E-1
IC411	C-2
IC417	B-1
IC418	B-1
IC419	A-1
IC420	C-1
IC421	A-1
DIODE	
D401	G-1
D402	H-1
D403	H-2
D404	D-1
D407	B-3
TRANSISTOR	
Q401	H-2
Q402	G-3
Q403	D-1
Q404	G-2
Q405	C-3
Q408	B-2
Q410	B-2
Q411	A-2
Q412	B-2
Q413	B-2
Q414	C-2

*A

SSC-C350(J)	SERIAL NO. 30001-30050
SSC-C350(UC)	SERIAL NO. 10001-10080
SSC-C350P(EK)	SERIAL NO. 10001-10100

*B

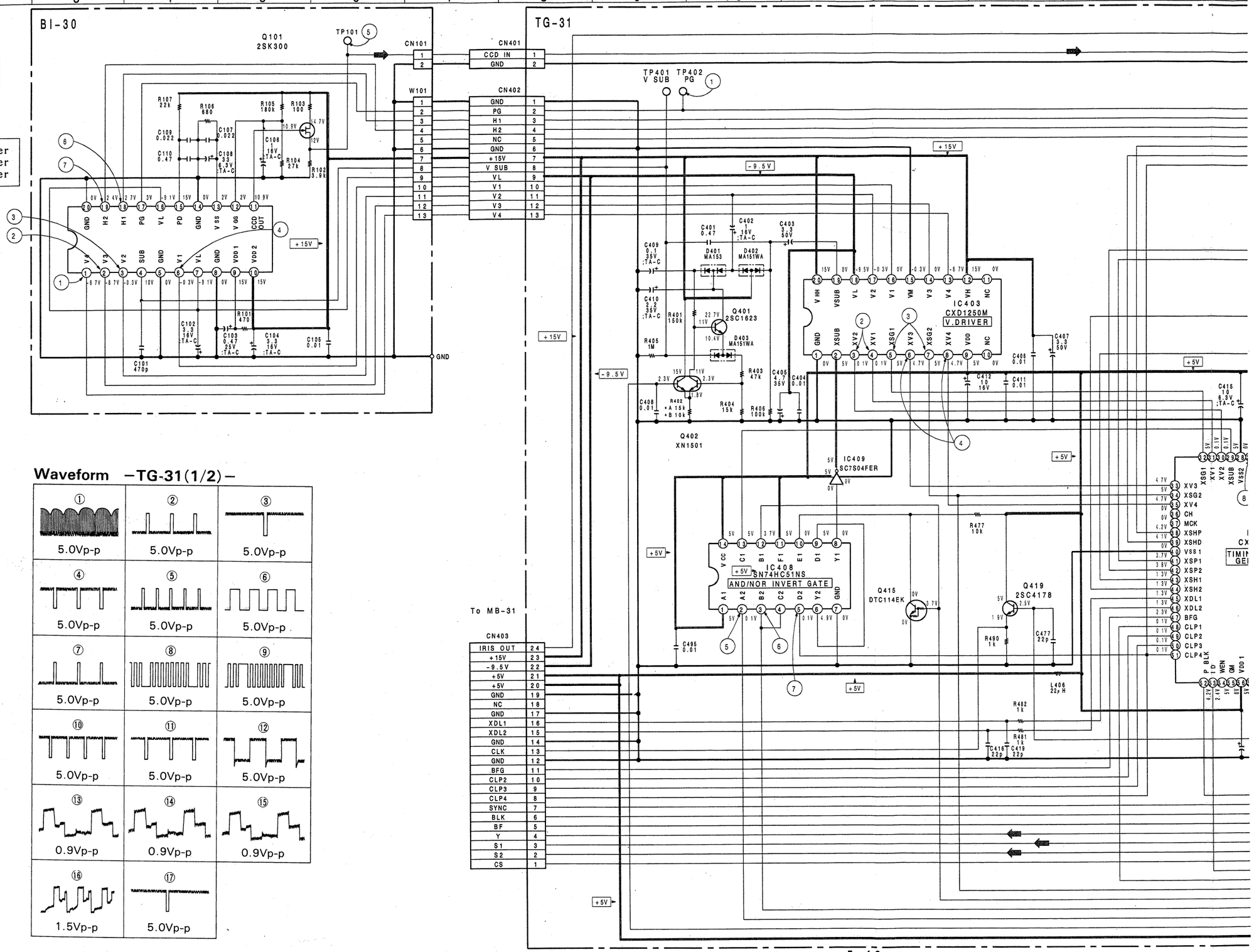
SSC-C350(J)	SERIAL NO. 30051 and later
SSC-C350(UC)	SERIAL NO. 10081 and later
SSC-C350P(EK)	SERIAL NO. 10101 and later

Waveform –BI-30–

① 9Vp-p	② 24.0Vp-p
③ 9Vp-p	④ 24.0Vp-p
⑤ 0.8Vp-p	⑥ 5.0Vp-p
⑦ 5.0Vp-p	

Waveform –TG-31(1/2)–

① 5.0Vp-p	② 5.0Vp-p	③ 5.0Vp-p
④ 5.0Vp-p	⑤ 5.0Vp-p	⑥ 5.0Vp-p
⑦ 5.0Vp-p	⑧ 5.0Vp-p	⑨ 5.0Vp-p
⑩ 5.0Vp-p	⑪ 5.0Vp-p	⑫ 5.0Vp-p
⑬ 0.9Vp-p	⑭ 0.9Vp-p	⑮ 0.9Vp-p
⑯ 1.5Vp-p	⑰ 5.0Vp-p	



SSC-C350/C350P

TG-31

CN101 / CN401 / CN402 / W101

CN401			CN402		W101
CCD IN	1	1	GND	1	1
GND	2	2	PG	2	2
		3	H1	3	3
		4	H2	4	4
		5	NC	5	5
		6	GND	6	6
		7	+15V	7	7
		8	V SUB	8	8
		9	VL	9	9
		10	V1	10	10
		11	V2	11	11
		12	V3	12	12
		13	V4	13	13

TP401 V SUB, TP402 PG

IC403 CXD1250M V.DRIVER

IC401 CXA1390R SAMPLE&HOLD AGC

IC405 CXD1253R TIMING CLOCK GENERATOR

IC408 SN74HC51NS AND/NOR INVERT GATE

IC409 SC7S04FER

IC404 MB7114L

Q401 2SC1623 / Q402 XN1501 / Q404 2SA812 / Q415 DTC114EK / Q419 2SC4178

D401 MA153 / D402 MA151WA / D403 MA151WA

To MB-31

CN403

IRIS OUT	24
+15V	23
-9.5V	22
+5V	21
+5V	20
GND	19
NC	18
GND	17
XDL1	16
XDL2	15
GND	14
CLK	13
GND	12
BFG	11
CLP2	10
CLP3	9
CLP4	8
SYNC	7
BLK	6
BF	5
Y	4
S1	3
S2	2
CS	1

IRIS IN, +5V, IRIS GC, VG OUT, AGC MAX, 0dB, OP OUT, PG, OP IN N, AGC SET, DET OUT, +5V, IRIS OUT, +5V, +5V, CK, FLD, VD, HD, GND, ED2, ED1, ED0, SYNC, BLK, BF, CL OUT, SMD2, I D, XSG2, CIRIS ON/OFF, SWND, V BLK, V SUB, +5V

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A B C D E F G H I J

IRIS OUT
+5V
IRIS GC
VG IN
AGC MAX
0dB
OP OUT
PG
OP IN N
AGC SET
DET IN
+5V
IRIS IN
+5V
+5V
CK
FLD
VD
HD
GND
ED2
ED1
ED0
SYNC
BLK
BF
CL IN
SMD 2
ID
XSG2
CIRIS ON/OFF
SWND
V BLK
V SUB
+5V

IC402 SC14S66FEL
IC406 CXD1159Q SYNC GENERATOR
IC411 TC5081AP
IC412 TC74HC123AF
IC413 TC74HC123AF
IC414 MC74HC74AF
IC415 NJM2230M
IC416 μPC358G2
IC417 SC7SOOFEL
IC418 SC74SOOFEL
IC419 SC7SOOFEL
IC420 SC7SU04FEL
IC421 SC7SOOFEL
IC802 SC7SOOF
LC-31
PAL MODEL ONLY
NTSC MODEL ONLY
Q405 XN4601
Q406 2SC1623
Q407 XN4601
Q416 2SC4178
Q417 2SC4178
Q403 2SA812
Q408 2SC1623
Q409 2SA812
Q410 2SC1623
Q411 2SA812
Q412 DTC114EK
Q413 2SC1623
Q414 2SC1623

8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

IC411 TC5081AP
A OUT A IN PD OUT PHASE OUT VDD NC R IN S IN Vss
IC421 SC7SOOFEL
IC412 TC74HC123AF
IC413 TC74HC123AF
IC802 SC7SOOF
LC-31
IC418 SC74SOOFEL
IC419 SC7SOOFEL
IC414 MC74HC74AF
IC420 SC7SU04FEL
IC415 NJM2230M
IC416 # PC358G2
NTSC MODEL ONLY
Q408 2SC1623
Q409 2SA812
Q410 2SC1623
Q411 2SA812
Q403 2SA812
Q417 2SC4178
Q412 DTC114EK
Q413 2SC1623
Q414 2SC1623

CN404 TO MB-31

1	LALT
2	EXT SYNC
3	GND
4	SMD2
5	ED2
6	ED1
7	ED0
8	SWND
9	V BLK
10	V D
11	XSG2
12	I D
13	VG OUT
14	IRIS DET
15	CIRIS ON/OFF
16	AGC ON/OFF
17	H SHIFT
18	AGC SET
19	IRIS GC
20	0 dB
21	AGC MAX
22	V SUB
23	PG LL
24	NC

(NTSC MODEL)
CN405 TO PR-30

1	4fsc
2	GND

(PAL MODEL)
CN406 TO PR-30

1	4fsc
2	GND

Waveform –TG-31(2/2)–

① 5.0Vp-p
② 0.8Vp-p
③ 5.0Vp-p
④ 5.0Vp-p
⑤ 5.0Vp-p
⑥ 5.0Vp-p
⑦ 5.0Vp-p

*A

SSC-C350(J)	SERIAL NO. 30001-30050
SSC-C350(UC)	SERIAL NO. 10001-10080
SSC-C350P(EK)	SERIAL NO. 10001-10100

*B

SSC-C350(J)	SERIAL NO. 30051 and later
SSC-C350(UC)	SERIAL NO. 10081 and later
SSC-C350P(EK)	SERIAL NO. 10101 and later

PR-30 BOARD

PR-30

To MB-31

CN301

WB-R	1
WB-G	2
WB-B	3
WB-DC	4
LD	5
SD	6
S CLK	7
B LEVEL	8
SET UP	9
Y LEVEL	10
I D	11
AGC CONT	12
GND	13
VIDEO 1	14
+5V	15
LALT	16
VIDEO 2	17
GND	18
NC	19
NC	20

IC301 CXA1391R

IC303 CXL1508N

IC305 MB88341PFV

IC304 CXL5504M

IC302 CXA1392R

Q301 2SC1623

Q309 2SA812

Q308 XN1501

Q307 XN1501

Q306 2SA812

Q304 2SA812

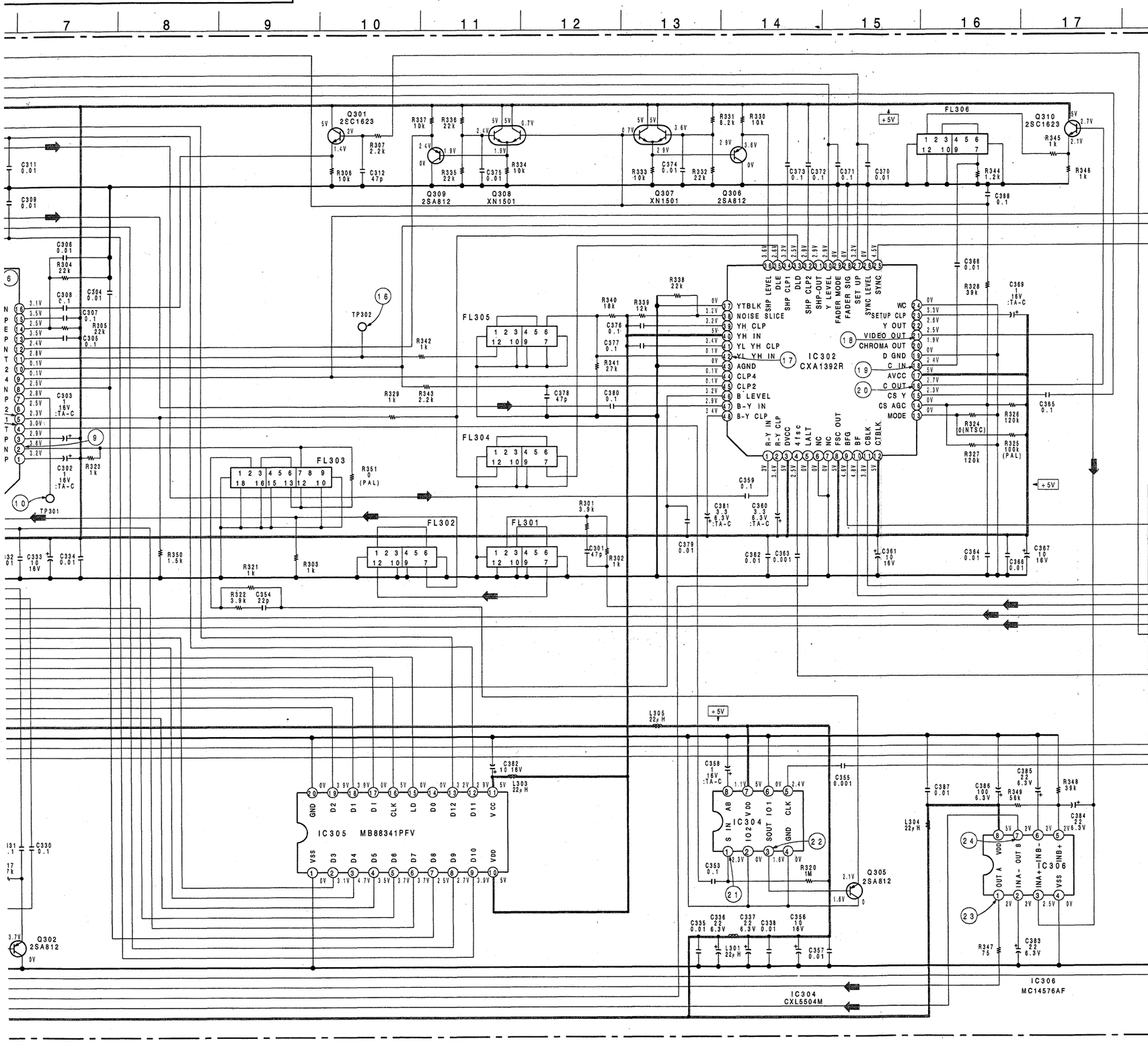
Q303 2SA812

Q302 2SA812

Q305 2SA812

FL305 FL304 FL303 FL302 FL301

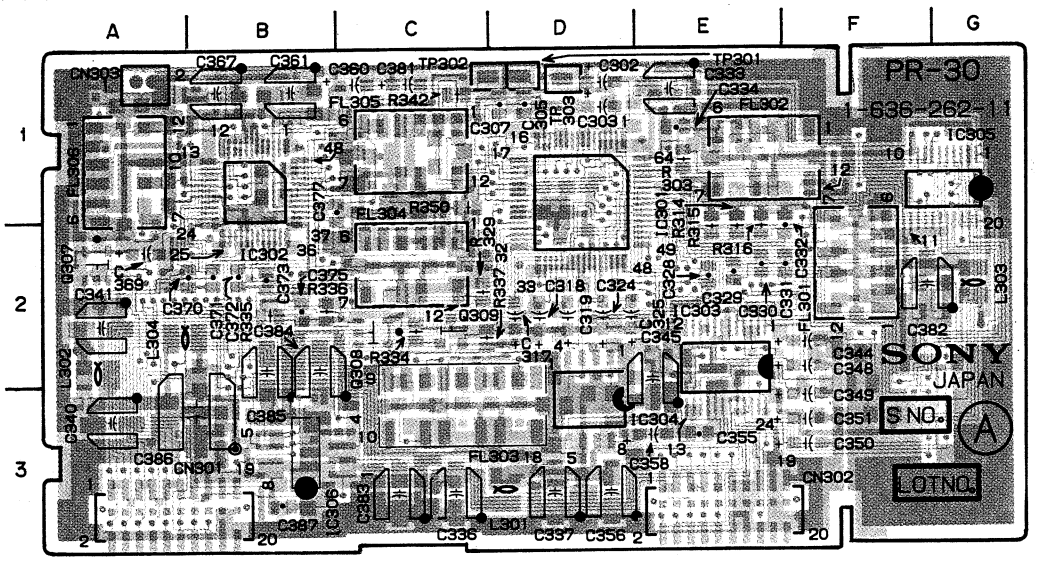
SSC-C350/C350P



Waveform –PR-30–

① 0.8Vp-p	② 0.9Vp-p
③ 0.6Vp-p	④ 0.9Vp-p
⑤ 0.8Vp-p	⑥ 0.3Vp-p
⑦ 1.4Vp-p	⑧ 0.6Vp-p
⑨ 0.4Vp-p	⑩ 0.4Vp-p
⑪ 1.0Vp-p	⑫ 0.25Vp-p
⑬ 0.3Vp-p	⑭ 0.4Vp-p
⑮ 0.3Vp-p	⑯ 0.5Vp-p
⑰ 0.4Vp-p	⑱ 1.3Vp-p
⑲ 0.5Vp-p	⑳ 0.7Vp-p
㉑ 0.6Vp-p	㉒ 0.7Vp-p
㉓ 1.3Vp-p	㉔ 1.3Vp-p

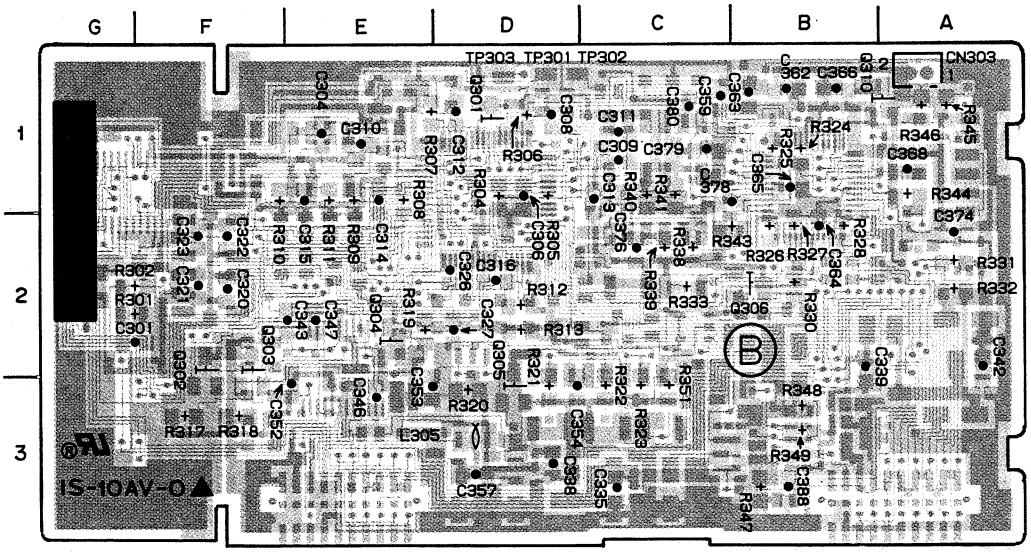
PR-30
-(A)SIDE-
1-636-262-11



IC	
IC301	E-2
IC302	B-2
IC303	E-2
IC304	D-3
IC305	G-1
IC306	B-3

TRANSISTOR	
Q307	A-2
Q308	C-2
Q309	C-2

PR-30
-(B)SIDE-
1-636-262-11



TRANSISTOR	
Q301	D-1
Q302	F-2
Q303	F-2
Q304	E-2
Q305	D-2
Q306	B-2
Q310	B-1

*A

SSC-C350(J)	SERIAL NO. 30001-30050
SSC-C350(UC)	SERIAL NO. 10001-10080
SSC-C350P(EK)	SERIAL NO. 10001-10100

*B

SSC-C350(J)	SERIAL NO. 30051 and later
SSC-C350(UC)	SERIAL NO. 10081 and later
SSC-C350P(EK)	SERIAL NO. 10101 and later

FC-30

To MB-31 CN501

NC	1
NC	2
NC	3
PG-LL	4
V-SUB	5
AGC MAX	6
O dB	7
IRIS GC	8
AGC SET	9
V SHIFT	10
AGC ON/OFF	11
EIRIS ON/OFF	12
IRIS	13
VG OUT	14
ID	15
XSG 2	16
VD	17
V BLK	18
SWND	19
ED0	20
ED1	21
ED2	22
SMD2	23
GND	24

8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

IC501 μPC324G2
Q501-Q503. 2SC1623
IC501 (1/4)
IC501 (2/4)
IC501 (3/4)
IC501 (4/4)
IC502 (1/2)
IC502 μPC393G2
IC503 μPC393G2
Q504 XN4601
Q505 XN1401
Q506 XN4601
IC505 MC68HC05N4
IC506 S-8054ALB -LM
X501
D501 MA151WA
SW501
SW502
(For Adjustment)
CN502

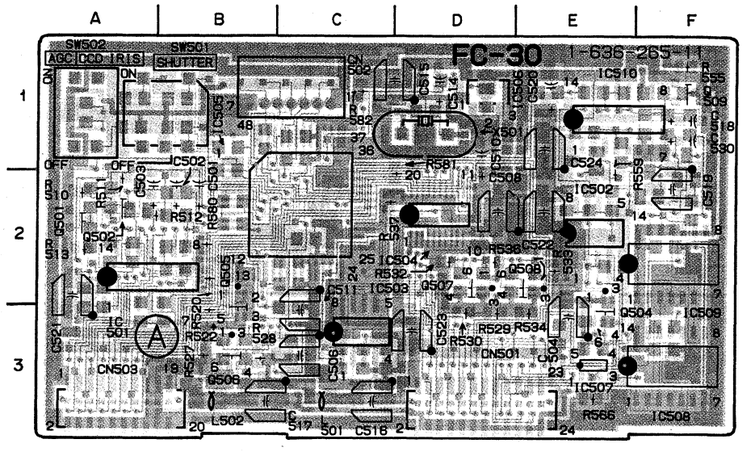
1	+5V
2	TMODE
3	SDI
4	SIO
5	SDO
6	SCK
7	GND

To MB-31
CN503

1	WB-R
2	WB-G
3	WB-B
4	WB-DC
5	LD
6	SD
7	SCLK
8	B LEVEL
9	SET UP
10	Y LEVEL
11	WB-L
12	WB-M
13	SHT(+)
14	SHT(-)
15	GND
16	GND
17	+5V
18	+5V
19	NC
20	NC

C507(2/2) S04FER(PAL)
IC508 MC74HC74AF
IC509 MC74HC74AF
IC510(1/4) μPC324G2
IC510(2/4) μPC324G2
IC510(3/4) μPC324G2
IC510 μPC324G2
Q509 2SC1623
Q510 2SA812
D502 MA151WA
D503 MA151WA
IC502(2/2) μPC393G2

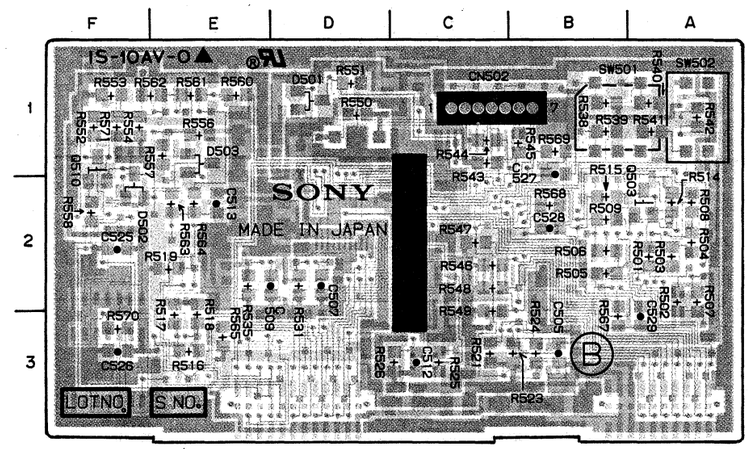
FC-30
-(A)SIDE-
1-636-265-11



IC	
IC501	A-3
IC502	E-2
IC503	C-2
IC504	C-2
IC505	B-1
IC506	D-1
IC508	F-3
IC509	F-3
IC510	E-1

TRANSISTOR	
Q501	A-2
Q502	A-2
Q504	E-3
Q505	B-2
Q506	B-3
Q507	D-2
Q508	E-2
Q509	F-1

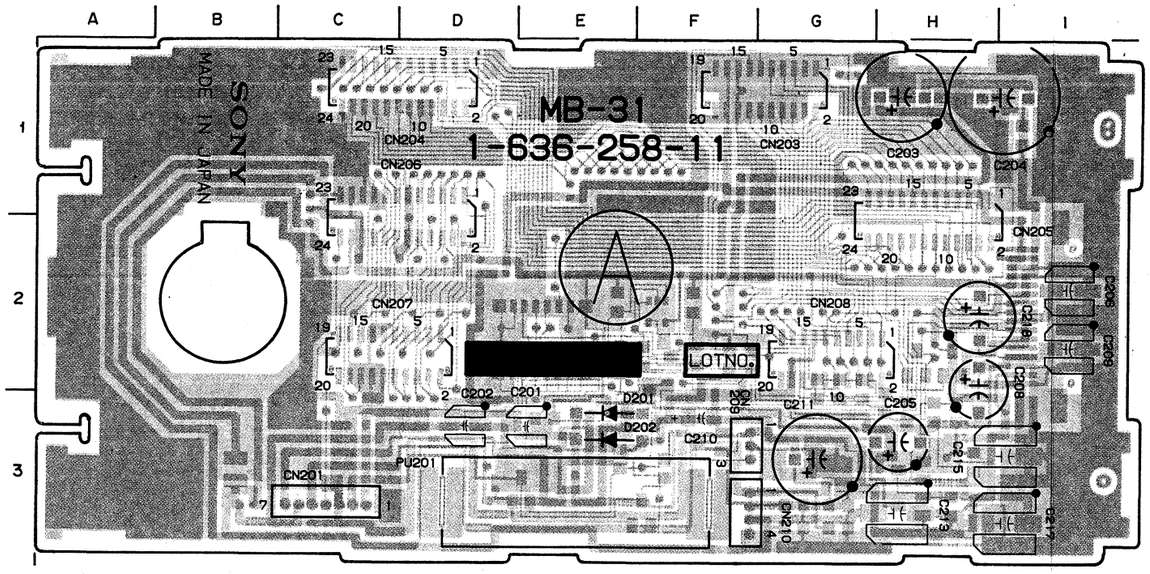
FC-30
-(B)SIDE-
1-636-265-11



TRANSISTOR	
Q503	A-2
Q510	F-1

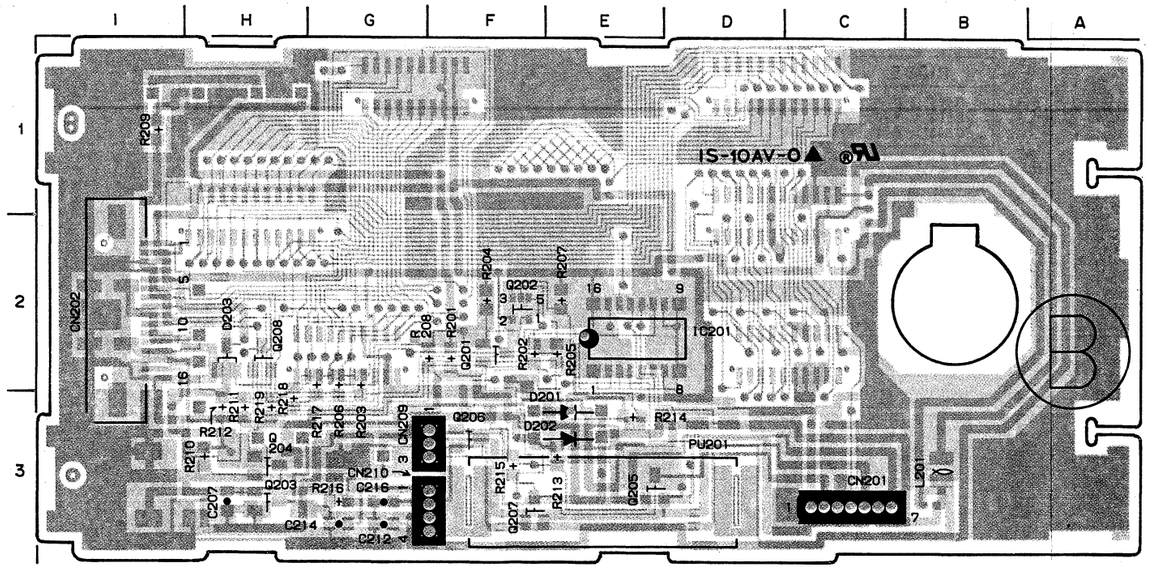
DIODE	
D501	D-1
D502	F-2
D503	E-1

MB-31
-(A)SIDE-
1-636-258-11



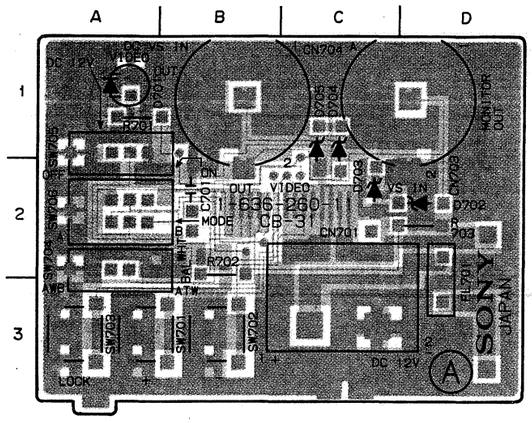
DIODE	
D201	E-3
D202	E-3

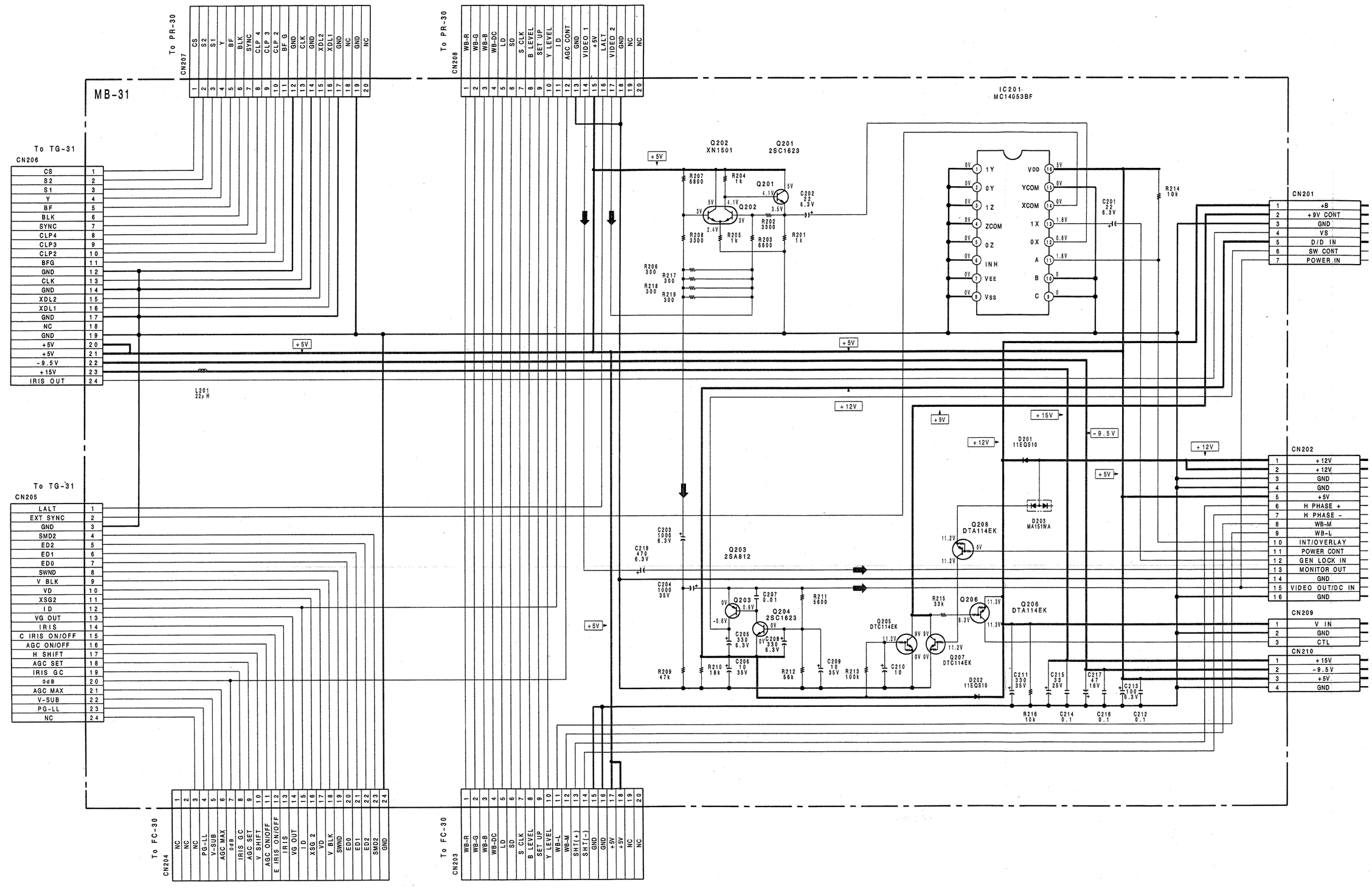
MB-31
-(B)SIDE-
1-636-258-11



IC	
IC201	D-2
TRANSISTOR	
Q201	F-2
Q202	F-2
Q203	H-3
Q204	H-3
Q205	E-3
Q206	F-3
Q207	F-3
Q208	H-2
DIODE	
D201	F-2
D202	F-3
D203	H-2

CB-31
-(A)SIDE-
1-636-260-11




1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
MB-31
To PR-30
CN207
CS S2 S1 Y BF BLK SYNC CLP 4 CLP 3 CLP 2 BF G GND CLK GND XDL2 XDL1 GND NC GND NC
To PR-30
CN208
WB-R WB-G WB-B WB-DC LD SD S CLK B LEVEL SET UP Y LEVEL I D AGC CONT GND VIDEO 1 +5V LALT VIDEO 2 GND NC NC
To TG-31
CN206
CS 1
S2 2
S1 3
Y 4
BF 5
BLK 6
SYNC 7
CLP4 8
CLP3 9
CLP2 10
BFG 11
GND 12
CLK 13
GND 14
XDL2 15
XDL1 16
GND 17
NC 18
GND 19
+5V 20
+5V 21
-9.5V 22
+15V 23
IRIS OUT 24
To TG-31
CN205
LALT 1
EXT SYNC 2
GND 3
SMD2 4
ED2 5
ED1 6
ED0 7
SWND 8
V BLK 9
VD 10
XSG2 11
I D 12
VG OUT 13
IRIS 14
C IRIS ON/OFF 15
AGC ON/OFF 16
H SHIFT 17
AGC SET 18
IRIS GC 19
0dB 20
AGC MAX 21
V-SUB 22
PG-LL 23
NC 24
L201 22μ H
Q202 XN1501
Q201 2SC1623
+5V
R207 6800
R204 1k
Q201
4.1V
5V
C202 22 6.3V
Q202
3V
3.5V
R202 3300
R208 3300
R205 1k
R203 6800
R201 1k
R206 300
R217 300
R218 300
R219 300
IC201 MC14053BF
1Y 0Y 1Z ZCOM 0Z INH VEE Vss
VDD YCOM XCOM 1X 0X A B C
R214 10k
C201 22 6.3V
+12V
+9V
+15V
-9.5V
D201 11EQS10
D203 MA151WA
Q208 DTA114EK
Q203 2SA812
C203 1000 6.3V
C218 470 6.3V
C204 1000 35V
Q203
Q204 2SC1623
C207 0.01
R211 5600
C205 330 6.3V
C208 330 6.3V
R209 47k
R210 18k
C206 10 35V
R212 56k
C209 10 35V
R213 100k
C210 10
Q205 DTC114EK
Q207 DTC114EK
R215 33k
Q206
Q206 DTA114EK
D202 11EQS10
C211 330 35V
C215 33 25V
C217 47 16V
C213 100 6.3V
R216 10k
C214 0.1
C216 0.1
C212 0.1
CN201
+B
+9V CONT
GND
VS
D/D IN
SW CONT
POWER IN
CN202
+12V
+12V
GND
GND
+5V
H PHASE +
H PHASE -
WB-M
WB-L
INT/OVERLAY
POWER CONT
GEN LOCK IN
MONITOR OUT
GND
VIDEO OUT/DC IN
GND
CN209
V IN
GND
CTL
CN210
+15V
-9.5V
+5V
GND
To FC-30
CN204
NC NC NC PG-LL V-SUB AGC MAX 0dB IRIS GC AGC SET V SHIFT AGC ON/OFF E IRIS ON/OFF IRIS VG OUT I D XSG 2 VD V BLK SWND ED0 ED1 ED2 SMD2 GND
To FC-30
CN203
WB-R WB-G WB-B WB-DC LD SD S CLK B LEVEL SET UP Y LEVEL WB-L WB-M SHT(+) SHT(-) GND GND +5V +5V NC NC

SSC-C350/C350P

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

A B C D E F G H I J

Y LEVEL
I D
AGC CONT
GND
VIDEO 1
+5V
I.ALT
VIDEO 2
GND
NC
NC

10 11 12 13 14 15 16 17 18 19 20

IC201
MC14053BF

1Y 0Y 1Z ZCOM 0Z INH VEE Vss
VDD YCOM XCOM 1X 0X A B C

Q202 XN1501
Q201 2SC1623
Q204 2SC1623
Q203 2SA812
Q205 DTC114EK
Q206 DTA114EK
Q207 DTC114EK
Q208 DTA114EK

D201 11EQS10
D202 11EQS10
D203 MA151WA

+5V +12V +9V +15V -9.5V

CN201
1 +B
2 +9V CONT
3 GND
4 VS
5 D/D IN
6 SW CONT
7 POWER IN

CN202
1 +12V
2 +12V
3 GND
4 GND
5 +5V
6 H PHASE +
7 H PHASE -
8 WB-M
9 WB-L
10 INT/OVERLAY
11 POWER CONT
12 GEN LOCK IN
13 MONITOR OUT
14 GND
15 VIDEO OUT/DC IN
16 GND

CN209
1 V IN
2 GND
3 CTL

CN210
1 +15V
2 -9.5V
3 +5V
4 GND

H-30

Q602 DTA114ES
Q601 2SD882
Q602
D601 RD10ESB2
L601 1.8μH
TP601
Q603 2SD669A

CN602
CN601
1 +9V
2 NC
3 VS
4 GND
IRIS Connector (4pin)

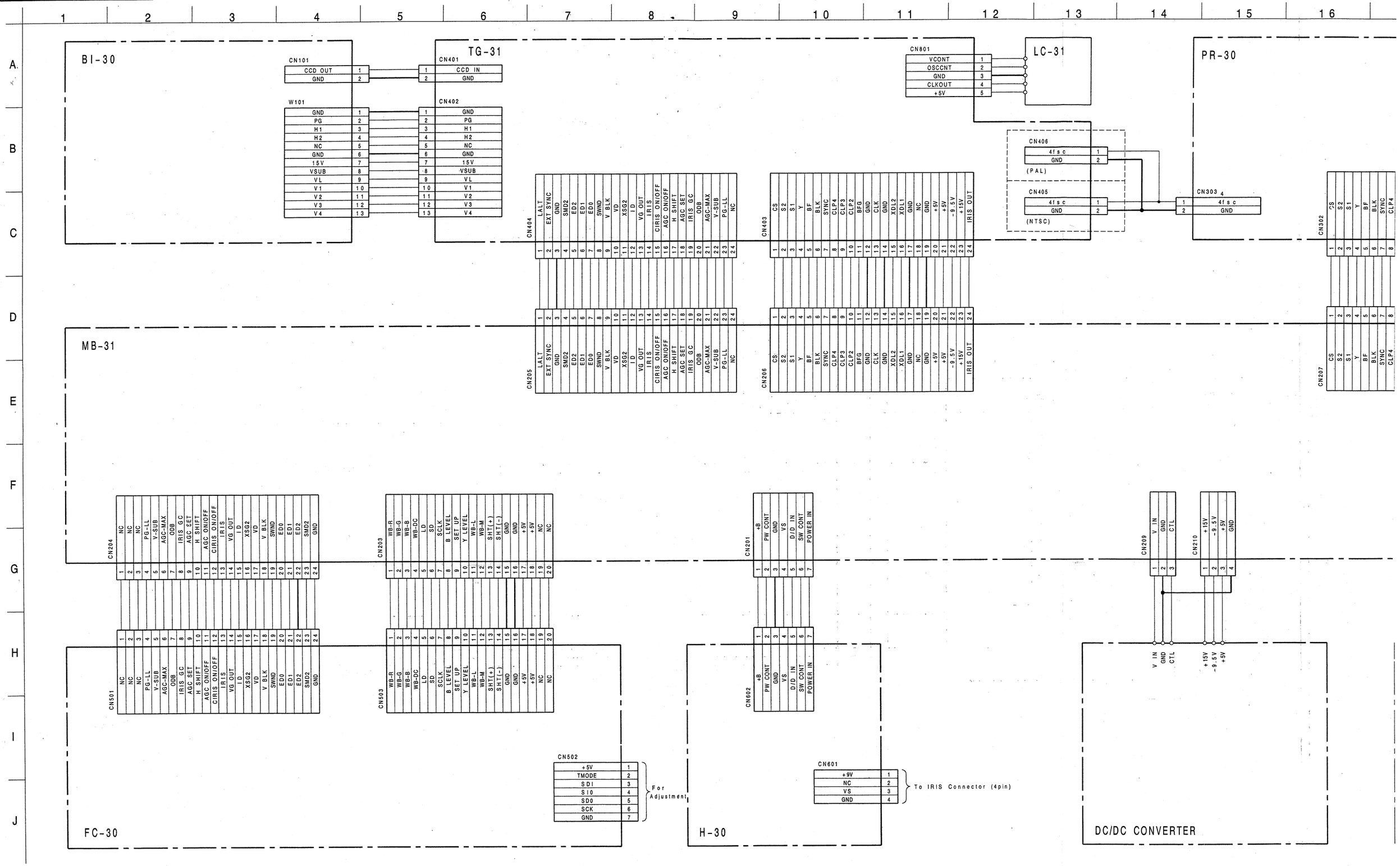
CB-31

F701
FL701
CN701
1 DC 12V IN
2 GND

CN702
D701 SLR-34VR3
SW701
SW702
SW703
AWB SW704 ATW
ON SW705 OFF
OVERLAY SW706 INT
D703 RD5.6ESB2
D702 RD5.6ESB2
D705 RD36ESB2
D704 RD5.6ESB2
CN703 MONITOR OUT GEN LOCK IN
CN704 VIDEO OUT DC SYNC IN

+5V -9.5V +15V CTL GND V IN 12V

PU201
DC/DC CONVERTER


BI-30
CN101
CCD OUT 1
GND 2
W101
GND 1
PG 2
H1 3
H2 4
NC 5
GND 6
15V 7
VSUB 8
VL 9
V1 10
V2 11
V3 12
V4 13
TG-31
CN401
1 CCD IN
2 GND
CN402
1 GND
2 PG
3 H1
4 H2
5 NC
6 GND
7 15V
8 VSUB
9 VL
10 V1
11 V2
12 V3
13 V4
CN801
VCONT 1
OSCCNT 2
GND 3
CLKOUT 4
+5V 5
LC-31
PR-30
CN406
4fsc 1
GND 2
(PAL)
CN405
4fsc 1
GND 2
(NTSC)
CN303 4
1 4fsc
2 GND
CN404
LALT 1
EXT SYNC 2
GND 3
SMD2 4
ED2 5
ED1 6
ED0 7
SWND 8
V BLK 9
VD 10
XSG2 11
ID 12
VG OUT 13
IRIS 14
CIRIS ON/OFF 15
AGC ON/OFF 16
H SHIFT 17
AGC SET 18
IRIS GC 19
ODB 20
AGC-MAX 21
V-SUB 22
PG-LL 23
NC 24
CN403
CS 1
S2 2
S1 3
Y 4
BF 5
BLK 6
SYNC 7
CLP4 8
CLP3 9
CLP2 10
BFG 11
GND 12
CLK 13
GND 14
XDL2 15
XDL1 16
GND 17
NC 18
GND 19
+5V 20
+5V 21
-9.5V 22
+15V 23
IRIS OUT 24
CN302
CS 1
S2 2
S1 3
Y 4
BF 5
BLK 6
SYNC 7
CLP4 8
CN205
LALT 1
EXT SYNC 2
GND 3
SMD2 4
ED2 5
ED1 6
ED0 7
SWND 8
V BLK 9
VD 10
XSG2 11
ID 12
VG OUT 13
IRIS 14
CIRIS ON/OFF 15
AGC ON/OFF 16
H SHIFT 17
AGC SET 18
IRIS GC 19
ODB 20
AGC-MAX 21
V-SUB 22
PG-LL 23
NC 24
CN206
CS 1
S2 2
S1 3
Y 4
BF 5
BLK 6
SYNC 7
CLP4 8
CLP3 9
CLP2 10
BFG 11
GND 12
CLK 13
GND 14
XDL2 15
XDL1 16
GND 17
NC 18
GND 19
+5V 20
+5V 21
-9.5V 22
+15V 23
IRIS OUT 24
CN207
CS 1
S2 2
S1 3
Y 4
BF 5
BLK 6
SYNC 7
CLP4 8
MB-31
CN204
NC 1
NC 2
NC 3
PG-LL 4
V-SUB 5
AGC-MAX 6
ODB 7
IRIS GC 8
AGC SET 9
H SHIFT 10
AGC ON/OFF 11
CIRIS ON/OFF 12
IRIS 13
VG OUT 14
ID 15
XSG2 16
VD 17
V BLK 18
SWND 19
ED0 20
ED1 21
ED2 22
SMD2 23
GND 24
CN203
WB-R 1
WB-G 2
WB-B 3
WB-DC 4
LD 5
SD 6
SCLK 7
B LEVEL 8
SET UP 9
Y LEVEL 10
WB-L 11
WB-M 12
SHT(+) 13
SHT(-) 14
GND 15
GND 16
+5V 17
+5V 18
NC 19
NC 20
CN201
+B 1
PW CONT 2
GND 3
VS 4
D/D IN 5
SW CONT 6
POWER IN 7
CN209
V IN 1
GND 2
CTL 3
CN210
+15V 1
-9.5V 2
+5V 3
GND 4
CN501
CN503
CN602
V IN
GND
CTL
+15V
-9.5V
+5V
CN502
+5V 1
TMODE 2
SDI 3
SIO 4
SDO 5
SCK 6
GND 7
For Adjustment
CN601
+9V 1
NC 2
VS 3
GND 4
To IRIS Connector (4pin)
FC-30
H-30
DC/DC CONVERTER

8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

CN801
VCONT 1
OSCCNT 2
GND 3
CLKOUT 4
+5V 5

LC-31

PR-30

CN406
4fsc 1
GND 2
(PAL)

CN405
4fsc 1
GND 2
(NTSC)

CN303 4
1 4fsc
2 GND

XSG2: 1 ID, 2 VG OUT, 3 IRIS, 4 CIRIS ON/OFF, 5 AGC ON/OFF, 6 H SHIFT, 7 AGC SET, 8 IRIS GC, 9 ODB, 10 AGC-MAX, 11 V-SUB, 12 PG-LL, 13 NC

CN403: 1 CS, 2 S2, 3 S1, 4 Y, 5 BF, 6 BLK, 7 SYNC, 8 CLP4, 9 CLP3, 10 CLP2, 11 BFG, 12 GND, 13 CLK, 14 GND, 15 XDL2, 16 XDL1, 17 GND, 18 NC, 19 GND, 20 +5V, 21 +5V, 22 -9.5V, 23 +15V, 24 IRIS OUT

CN206: 1 CS, 2 S2, 3 S1, 4 Y, 5 BF, 6 BLK, 7 SYNC, 8 CLP4, 9 CLP3, 10 CLP2, 11 BFG, 12 GND, 13 CLK, 14 GND, 15 XDL2, 16 XDL1, 17 GND, 18 NC, 19 GND, 20 +5V, 21 +5V, 22 -9.5V, 23 +15V, 24 IRIS OUT

CN302: 1 CS, 2 S2, 3 S1, 4 Y, 5 BF, 6 BLK, 7 SYNC, 8 CLP4, 9 CLP3, 10 CLP2, 11 BFG, 12 GND, 13 CLK, 14 GND, 15 XDL2, 16 XDL1, 17 GND, 18 NC, 19 GND, 20 NC

CN207: 1 CS, 2 S2, 3 S1, 4 Y, 5 BF, 6 BLK, 7 SYNC, 8 CLP4, 9 CLP3, 10 CLP2, 11 BFG, 12 GND, 13 CLK, 14 GND, 15 XDL2, 16 XDL1, 17 GND, 18 NC, 19 GND, 20 NC

CN301: 1 WB-R, 2 WB-G, 3 WB-B, 4 WB-DC, 5 LD, 6 SD, 7 SCLK, 8 B LEVEL, 9 SET UP, 10 Y LEVEL, 11 ID, 12 AGC CONT, 13 GND, 14 VIDEO1, 15 +5V, 16 LALT, 17 VIDEO2, 18 GND, 19 NC, 20 NC

CN208: 1 WB-R, 2 WB-G, 3 WB-B, 4 WB-DC, 5 LD, 6 SD, 7 SCLK, 8 B LEVEL, 9 SET UP, 10 Y LEVEL, 11 ID, 12 AGC CONT, 13 GND, 14 VIDEO1, 15 +5V, 16 LALT, 17 VIDEO2, 18 GND, 19 NC, 20 NC

CN201: 1 +B, 2 PW CONT, 3 GND, 4 VS, 5 D/D IN, 6 SW CONT, 7 POWER IN

CN602: 1 +B, 2 PW CONT, 3 GND, 4 VS, 5 D/D IN, 6 SW CONT, 7 POWER IN

CN209: 1 V IN, 2 GND, 3 CTL

CN210: 1 +15V, 2 -9.5V, 3 +5V, 4 GND

CN202: 1 +12V, 2 +12V, 3 GND, 4 GND, 5 5V, 6 H PHASE +, 7 H PHASE -, 8 WB-M, 9 WB-L, 10 INT/OVERLAY, 11 POWER CONT, 12 GEN LOCK IN, 13 MONITOR OUT, 14 GND, 15 VIDEO OUT/DC IN, 16 GND

CN702: 1 +12V, 2 +12V, 3 GND, 4 GND, 5 5V, 6 H PHASE +, 7 H PHASE -, 8 WB-M, 9 WB-L, 10 INT/OVERLAY, 11 POWER CONT, 12 GEN LOCK IN, 13 MONITOR OUT, 14 GND, 15 VIDEO OUT/DC IN, 16 GND

1 2 3 4 5 6 7 For Adjustment

CN601
+9V 1
NC 2
VS 3
GND 4
To IRIS Connector (4pin)

H-30

V IN GND CTL

+15V -9.5V +5V

DC/DC CONVERTER

CB-31

CN701
DC12V 1
GND 2
DC12V IN

5-4. SEMICONDUCTOR PIN ASSIGNMENTS

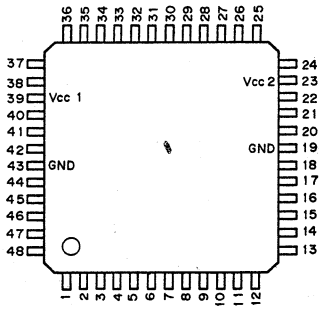
等価回路はICメーカーのData Bookに従いました。
The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

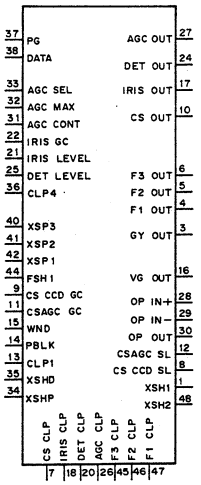
TYPE	PAGE
IC	
CXA1390R	5-34
CXA1391R	5-35
CXA1392R	5-36
CXD1159Q	5-37
CXD1250M	5-38
CXD1253R	5-38
CXL1508N	5-39
CXL5504M	5-40
ICX026CK-3	5-40
ICX027CK-3	5-40
MB88341PFV	5-40
MC14053BF	5-40
MC14576AF	5-41
MC68HC05N4	5-41
MC74HC123AF	5-41
MC74HC74AF	5-41
NJM2230M	5-41
S-8054ALB-LM-S	5-42
SC14S66F	5-42
SC406672FU	5-41
SC7S00F	5-42
SC7S04F	5-42
SC7SU04F	5-42
SN74HC51NS	5-42
TC5081AP	5-42
TC74HC123AF	5-41
uPC324G2	5-43
uPC358G2	5-43
uPC393G2	5-43

TYPE	PAGE
Tr, Di	
11EQS10	5-43
1S2836	5-43
1SS226	5-43
1T33C-01	5-43
2SA1162	5-43
2SA812	5-43
2SC1623	5-43
2SC4178	5-43
2SD669A	5-43
2SD882	5-43
2SK300	5-43
DTA114EK	5-43
DTA114ES	5-43
DTC114EK	5-43
GL-3PR9	5-43
MA151WA	5-43
MA153	5-43
RD10ES-B2	5-43
RD36ES-B2	5-43
RD5.6ES-B2	5-43
SLR-34VR3	5-44
XN1216	5-44
XN1401	5-44
XN1501	5-44
XN4601	5-44

CXA1390R (SONY)

C-MOS SAMPLE & HOLD AND AGC FOR CCD
– TOP VIEW –





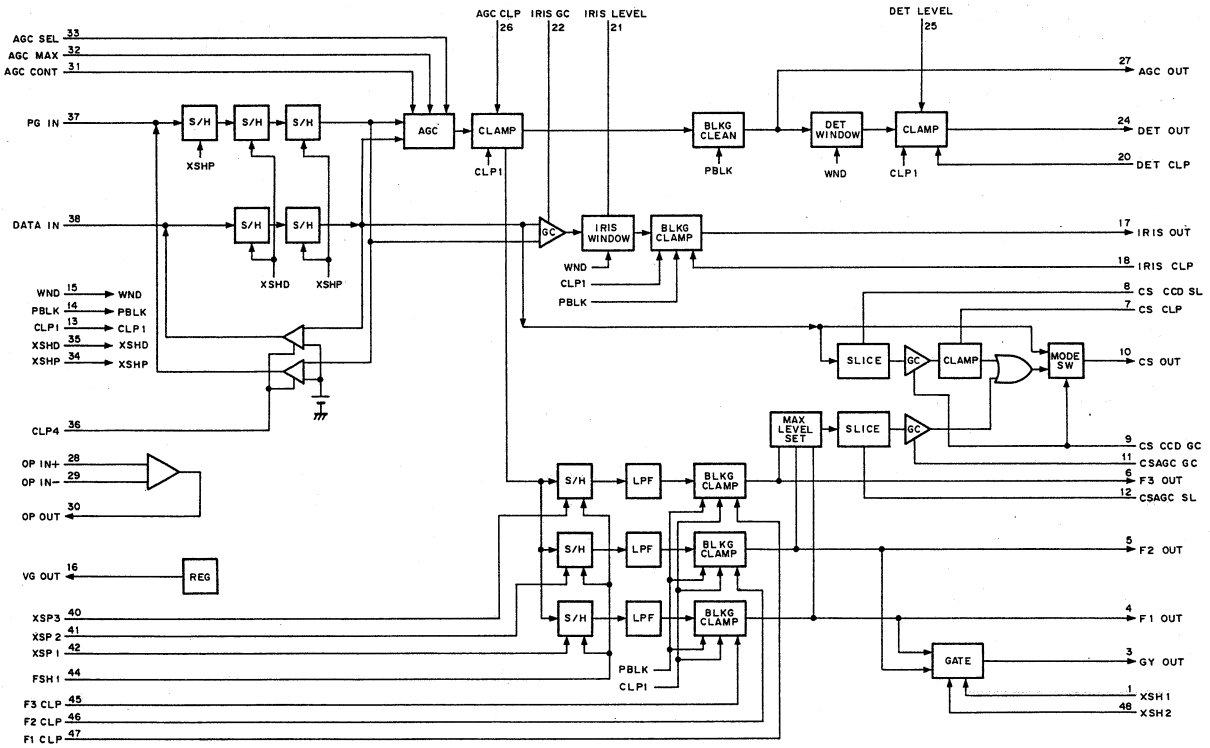
PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL
1	I	XSH1	13	I	CLP 1	25	I	DET LEVEL	37	I	PG IN
2	O	DC OUT	14	I	PBLK	26	I	AGC CLP	38	I	DATA IN
3	O	GY OUT	15	I	WND	27	O	AGC OUT	39	–	Vcc1
4	O	F1 OUT	16	O	VG OUT	28	I	OP IN +	40	I	XSP3
5	O	F2 OUT	17	O	IRIS OUT	29	I	OP IN –	41	I	XSP2
6	O	F3 OUT	18	I	IRIS CLP	30	O	OP OUT	42	I	XSP1
7	I	CS CLP	19	–	GND	31	I	AGC CONT	43	–	GND
8	I	CS CCD SL	20	I	DET CLP	32	I	AGC MAX	44	I	FSH1
9	I	CS CCD GC	21	I	IRIS LEVEL	33	I	AGC SEL	45	I	F3 CLP
10	O	CS OUT	22	I	IRIS GC	34	I	XSHP	46	I	F2 CLP
11	I	CS AGC GC	23	–	Vcc2	35	I	XSHD	47	I	F1 CLP
12	I	CS AGC SL	24	O	DET OUT	36	I	CLP4	48	I	XSH2

INPUT

XSH1, XSH2	; SAMPLE AND HOLD PULSE INPUTS FOR 1H DELAY LINE
XSHP, XSHD	; SAMPLE AND HOLD PULSE INPUTS FOR CCD IMAGER
XSP3, XSP2, XSP1	; SAMPLE AND HOLD PULSE INPUTS FOR COLOR SEPARATION
CS CLP	; CLAMP INPUT FOR COLOR SEPARATION
IRIS CLP	; CLAMP INPUT FOR IRIS CONT
DET CLP	; CLAMP INPUT FOR SIGNAL DETECT
AGC CLP	; CLAMP INPUT FOR AGC
F3/F2/F1 CLP	; CLAMP INPUTS FOR F1, F2 AND F3
CS CCD SL	; HIGH LUMINANCE DET LEVEL ADJ FOR INPUT SIGNAL
CS CCD GC	; HIGH LUMINANCE GAIN ADJ FOR INPUT SIGNAL
CSAGC GC	; HIGH LUMINANCE DET LEVEL ADJ FOR AFTER AGC
CSAGC SL	; HIGH LUMINANCE DET LEVEL ADJ FOR INPUT SIGNAL
IRIS LEVEL	; WEIGHT ADJ INPUT FOR DET OUTPUT
IRIS GC	; GAIN CONT INPUT FOR IRIS OUT
DET LEVEL	; WEIGHT ADJ INPUT FOR DET OUTPUT
AGC CONT	; AGC AMPLIFIER GAIN CONT INPUT
AGC MAX	; AGC AMPLIFIER MAX GAIN CONT INPUT
CLP1	; CLAMP PULSE 1 INPUT
PBLK	; PRE BLKG PULSE INPUT
WND	; WINDOW PULSE INPUT
CLP4	; CLAMP PULSE 4 INPUT
OP IN +	; NON-INVERTING INPUT OF OPERATIONAL AMPLIFIER
OP IN –	; INVERTING INPUT OF OPERATIONAL AMPLIFIER
AGC SEL	; GAIN SELECT FOR AGC AMPLIFIER
PG IN	; CCD SIGNAL INPUT
DATA IN	; CCD SIGNAL INPUT
FSHI	; LOCK SPEED ADJ INPUT FOR COLOR SEPARATION S/H

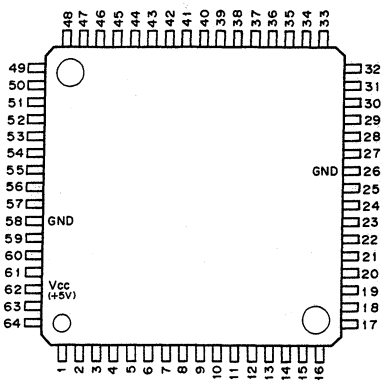
OUTPUT

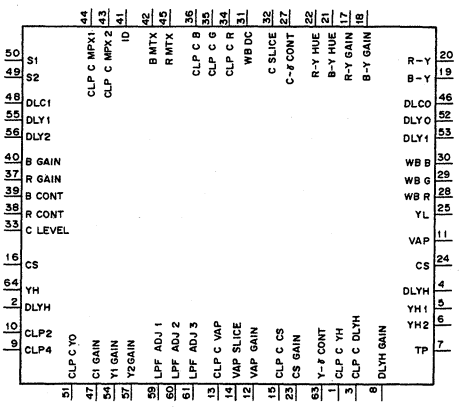
GY OUT	; GY OUTPUT
F1, F2, F3 OUT	; F1, F2 AND F3 OUTPUTS
AGC OUT	; AGC OUTPUT
CS OUT	; COLOR SEPARATION OUTPUT
IRIS OUT	; IRIS OUTPUT
DET OUT	; DET OUTPUT
VG OUT	; REGULATED DC OUTPUT
OP OUT	; OPERATIONAL AMPLIFIER OUTPUT



CXA1391R (SONY) FLAT PACKAGE

PROCESSING IC FOR COMPLEMENTARY COLOR MOSAIC CCD CAMERA
– TOP VIEW –





(Vcc = + 5V)

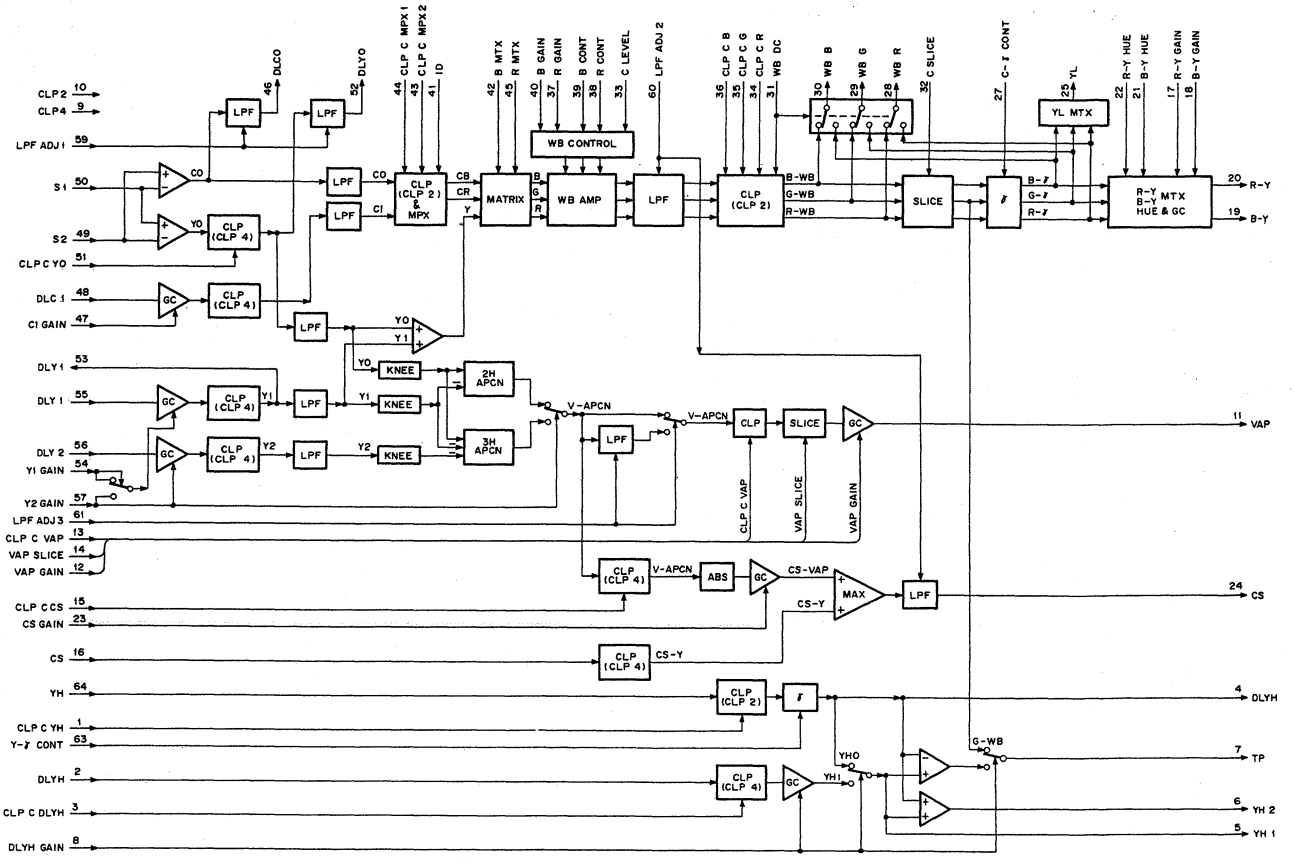
PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL
1	I	CLP C YH	17	I	R-Y GAIN	33	I	C LEVEL	49	I	S2
2	I	DLYH	18	I	B-Y GAIN	34	I	CLP C R	50	I	S1
3	I	CLP C DLYH	19	O	B-Y	35	I	CLP C G	51	I	CLP C YO
4	O	DLYH	20	O	R-Y	36	I	CLP C B	52	O	DLYO
5	O	YH1	21	I	B-Y HUE	37	I	R GAIN	53	O	DLY1
6	O	YH2	22	I	R-Y HUE	38	I	R CONT	54	I	Y1 GAIN
7	O	TP	23	I	CS GAIN	39	I	B CONT	55	I	DLY1
8	I	DLYH GAIN	24	O	CS	40	I	B GAIN	56	I	DLY2
9	I	CLP4	25	O	YL	41	I	ID	57	I	Y2 GAIN
10	I	CLP2	26	–	GND	42	I	B MTX	58	–	GND
11	O	VAP	27	I	C-γ CONT	43	I	CLP C MPX2	59	I	LPF ADJ 1
12	I	VAP GAIN	28	O	WB R	44	I	CLP C MPX1	60	I	LPF ADJ 2
13	I	CLP C VAP	29	O	WB G	45	I	R MTX	61	I	LPF ADJ 3
14	I	VAP SLICE	30	O	WB B	46	O	DLCO	62	–	Vcc
15	I	CLP C CS	31	O	WB DC	47	I	C1 GAIN	63	I	Y-γ CONT
16	I	CS	32	I	C SLICE	48	I	DLC1	64	I	YH

INPUT

B, R CONT	; B, RCH WB AMPLIFIER GAIN CONTROL
B, R GAIN	; B, RCH WB AMPLIFIER GAIN CONTROL (PRE-WB)
B, R MTX	; B, R SIGNAL OPERATIONS MTX COEFFICIENT ADJ.
C LEVEL	; CHROMA (R.G.B) GAIN CONTROL
C SLICE	; CHROMA (R.G.B) SIGNALS DARK SLICE LEVEL ADJ.
C-γ CONT	; CHROMA (R.G.B) γ CURVE ADJ.
C1 GAIN	; DLC1 SIGNAL GAIN CONTROL
CLP C R.G.B	; CAPACITOR CONNECTING FOR R.G.B .WB AMPLIFIER CLAMP
CLP C CS	; CAPACITOR CONNECTING FOR CS CLAMP
CLP C DLYH	; CAPACITOR CONNECTING FOR DLYH CLAMP
CLP C MPX1, 2	; CAPACITOR CONNECTING FOR MPX CLAMP
CLP C VAP	; CAPACITOR CONNECTING FOR VAP CLAMP
CLP C YO	; CAPACITOR CONNECTING FOR YO CLAMP
CLP C YH	; CAPACITOR CONNECTING FOR YH CLAMP
CLP2	; OPB CLAMP
CLP4	; BLK CLAMP
CS IN	; AGC CS SIGNAL
CS GAIN	; V-APCN CS SIGNAL GAIN CONTROL
DLC1, Y1, Y2	; DLC1, Y1, Y2 SIGNAL
DLYH	; DLYH SIGNAL
DLYH GAIN	; DLYH SIGNAL GAIN CONTROL
ID	; COLOR DISCRIMINATION PULSE
LPF ADJ 1	; DETERMINES THE CHARACTERISTICS OF THE LPF FOR 1H DL
LPF ADJ 2	; DETERMINES THE CHARACTERISTICS OF THE CHROMA LPF (R,G.B.CS)
LPF ADJ 3	; DETERMINES THE CHARACTERISTICS OF THE LPF FOR V-APCN
R-Y, B-Y GAIN	; R-Y, B-Y, SIGNAL OUTPUT LEVEL ADJ.
R-Y, B-Y HUE	; R-Y, B-Y HUE CONTROL
S1, 2	; S1, 2 SIGNAL
VAP GAIN	; V-APCN SIGNAL OUTPUT LEVEL ADJ.
VAP SLICE	; V-APCN SIGNAL DARK SLICE VOLUME ADJ.
Y-γ CONT	; YH γ CURVE ADJ.
Y1, 2 GAIN	; DLY1, 2 SIGNAL GAIN CONTROL
YH	; YH SIGNAL

OUTPUT

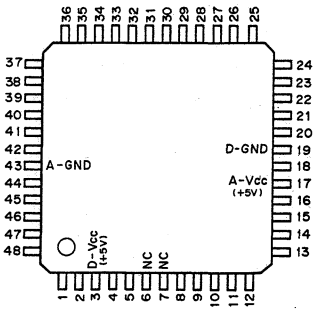
CS OUT	; CS SIGNAL
DLCO	; DLCO SIGNAL
DLCO, 1	; DLCO, 1 SIGNAL
DLYO,1	; DLYO, 1 SIGNAL
DLYH	; DLYH SIGNAL
R-Y, B-Y	; R-Y, B-Y SIGNAL
TP	; ADJUSTING PIN
VAP	; V-APCN SIGNAL
WB R.G.B	; R.G.B SIGNAL
WB DC	; AUTO WB DC OUTPUT OR WB R.G.B TURN TO γ MODE
YH1, 2	; YH1, 2 SIGNAL
YL	; YL SIGNAL



CXA1392R (SONY) FLAT PACKAGE

ENCODER FOR CCD COLOR CAMERA

– TOP VIEW –



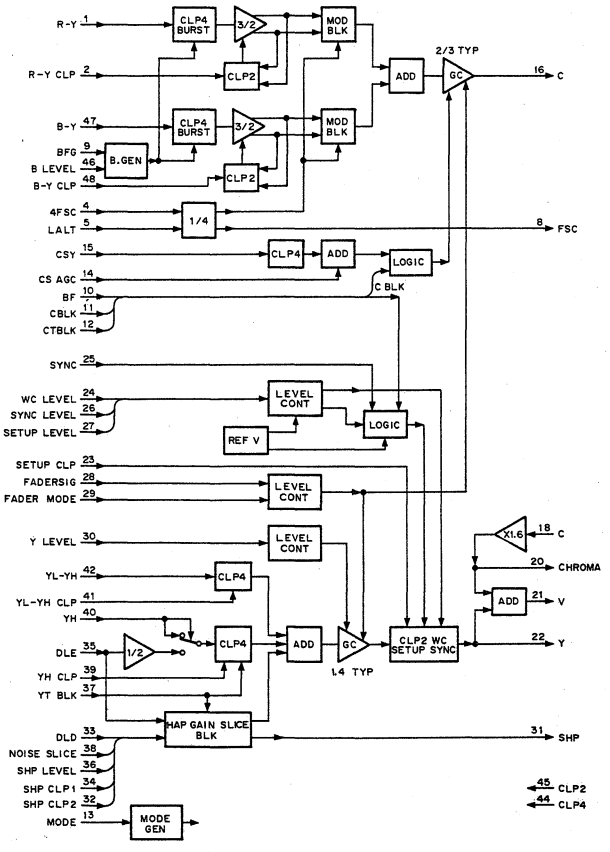
PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL
1	I	R-Y	13	I	MODE	25	I	SYNC	37	I	YTBLK
2	I	R-Y CLP	14	I	CS AGC	26	I	SYNC LEVEL	38	I	NOISE SLICE
3	–	D-Vcc(+5V)	15	I	CSY	27	I	SETUP LEVEL	39	I	YH CLP
4	I	4FSC	16	O	C	28	I	FADER SIG	40	I	YH
5	I	LALT	17	–	A-Vcc(+5V)	29	I	FADER MODE	41	I	YL-YH CLP
6	–	NC	18	I	C	30	I	Y LEVEL	42	I	YL-YH
7	–	NC	19	–	D-GND	31	O	SHP	43	–	A-GND
8	O	FSC	20	O	CHROMA	32	I	SHP CLP2	44	I	CLP4
9	I	BFG	21	O	V	33	I	DLD	45	I	CLP2
10	I	BF	22	O	Y	34	I	SHP CLP1	46	I	B LEVEL
11	I	CBLK	23	I	SETUP CLP	35	I	DLE	47	I	B-Y
12	I	CTBLK	24	I	WC LEVEL	36	I	SHP LEVEL	48	I	B-Y CLP

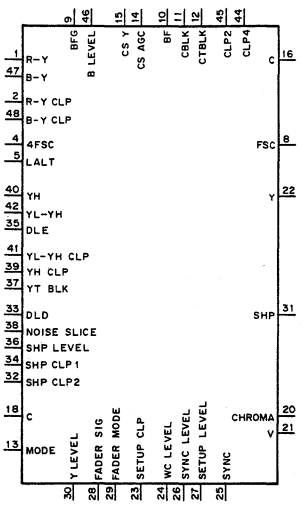
INPUT

4FSC	; 4FSC USED TO MAKE UP THE SUB CARRIER
B LEVEL	; CONTROLS THE BURST LEVEL
BF	; BURST FLAG PULSE
BFG	; INSERTS PULSE SLIGHT LARGER THAN BF ON BOTH ENDS
C	; INPUT FOR CHROMA SIGNAL PASSED THROUGH BPF
CBLK	; COMPOSITE BLANKING PULSE
CLP2, 4	; CLAMP2, 4 PULSE INPUT
CS AGC	; SUPPRESS CHROMA SIGNAL AT THE AGC GAIN CONTROL SIGNAL
CSY	; SUPPRESS CHROMA SIGNAL AT THE Y SIGNAL
CTBLK	; CHROMA TITLER PULSE
DLD	; CONNECTS THE DELAY LINE DRIVE SIDE OF THE APERTURE SIGNAL
DLE	; CONNECTS THE DELAY LINE END SIDE OF THE APERTURE SIGNAL
FADER MODE	; BLACK FADER AND WHITE FADER MODE SELECT
FADER SIG	; CONTROLS THE SIGNAL SUPPRESS LEVEL DURING BLACK FADER, CONTROLS THE SIGNAL SUPPRESS LEVEL DURING WHITE FADER AND AT THE SAME TIME CONTROLS THE SET UP LEVEL
LALT	; INPUT FOR LINE ALTERNATE SIGNAL DURING PAL MODE
MODE	; SELECTS NTSC, PAL OR NTSC × 2, PAL × 2 MODES
NOISE SLICE	; CONTROLS THE SLICE LEVEL OF THE APERTURE SIGNAL
R-Y, B-Y	; R-Y, B-Y SIGNAL
R-Y, B-Y CLP	; CONNECTING THE CAPACITOR FOR R-Y, B-Y MODULATOR CLAMP
SETUP CLP	; CONNECTING FOR THE WHITE CLIP CLAMP CAPACITOR
SETUP LEVEL	; SET UP LEVEL CONTROL
SHP CLP1, 2	; CONNECTS THE CLAMP CAPACITOR USED FOR THE SLICE OF THE APERTURE SIGNAL
SHP LEVEL	; CONTROL OF THE APERTURE SIGNAL LEVEL
SYNC	; SYNC PULSE
SYNC LEVEL	; SYNC LEVEL CONTROL
WC LEVEL	; WHITE CLIP LEVEL CONTROL
Y LEVEL	; Y SIGNAL LEVEL CONTROL
YH	; YH SIGNAL
YH CLP	; CONNECTS THE CAPACITOR FOR YH INPUT CLAMP
YL-YH	; V APERTURE SIGNALS, TITLER SIGNALS AND YL-YH SIGNALS
YL-YH CLP	; CONNECTS THE CAPACITOR FOR YL-YH INPUT CLAMP
YTBLK	; Y TITLER PULSE

OUTPUT

C	; CHROMA SIGNAL OUTPUT
CHROMA	; CHROMA SIGNAL OUTPUT WHEN USED FOR Y/C SEPARATION OUTPUT
FSC	; OUTPUTS A SUB CARRIER WITH THE SAME PHASE AS B-Y
SHP	; APERTURE SIGNAL
V	; COMPOSITE VIDEO SIGNAL
Y	; Y SIGNAL OUTPUT WHEN USED FOR Y/C SEPARATION OUTPUT

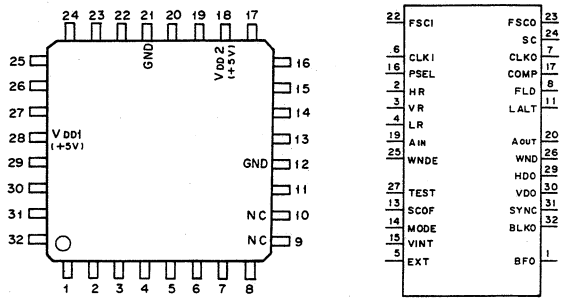




CXD1159Q (SONY)

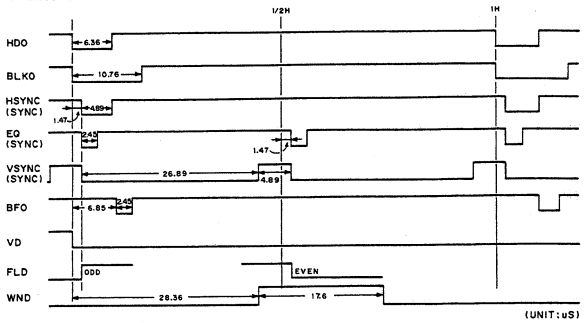
C-MOS SYNC GENERATOR

– TOP VIEW –

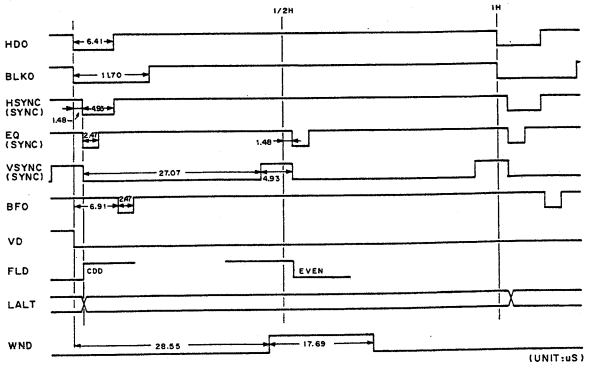


PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	O	BFO	9	–	NC	17	O	COMP	25	I	WNDE
2	I	HR	10	–	NC	18	–	VDD2(+5V)	26	O	WND
3	I	VR	11	O	LALT	19	I	AIN	27	I	TEST
4	I	LR	12	–	GND	20	O	AOUT	28	–	VDD1(+5V)
5	I	EXT	13	I	SCOF	21	–	GND	29	O	HDO
6	I	CLKI	14	I	MODE	22	I	FSCI	30	O	VDO
7	O	CLKO	15	I	VINT	23	O	FSCO	31	O	SYNC
8	O	FLD	16	I	PSEL	24	O	SC	32	O	BLKO

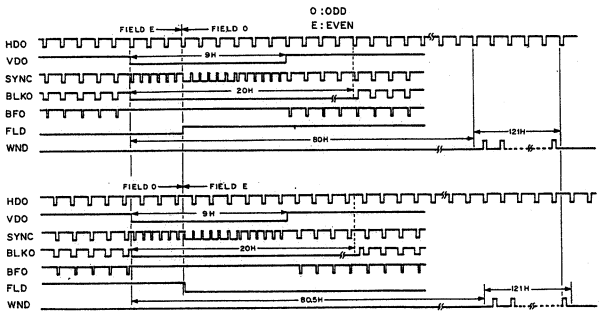
TIMING CHART H (NTSC)



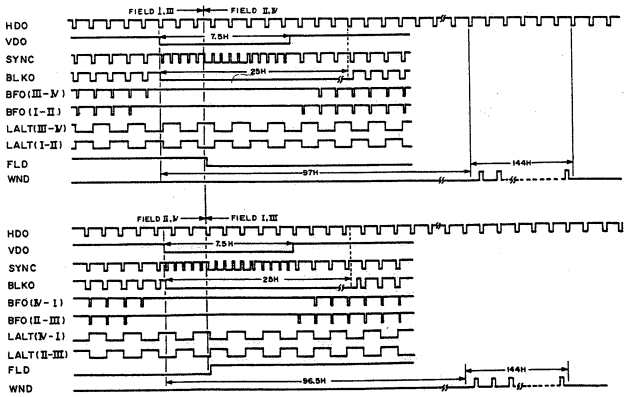
TIMING CHART H (PAL)

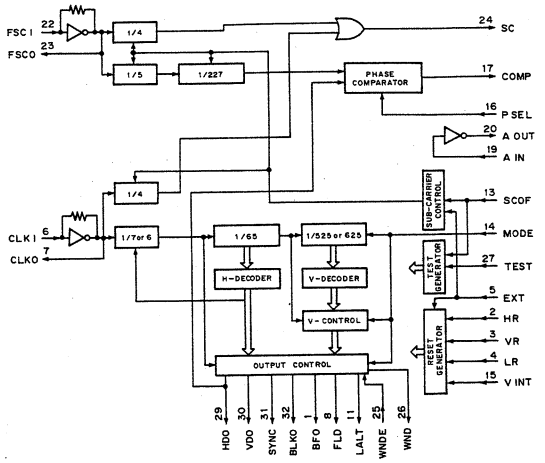


TIMING CHART V (NTSC)



TIMING CHART V (PAL)





INPUT

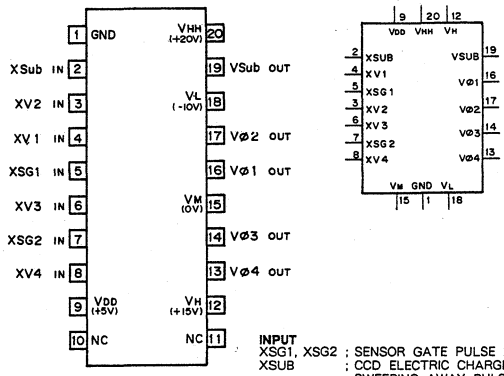
AIN	; FILTER INVERTER INPUT
CLKI	; CLOCK INPUT (NTSC ; 14.31818MHz /PAL ; 14.1875MHz)
EXT	; INT/EXT (L ; INT)
FSCI	; 4FSC CLOCK INPUT
HR	; H RESET
LR	; LALT RESET
MODE	; NTSC/PAL (L ; NTSC)
PSEL	; POLARITY SELECT FOR PHASE COMP
SCOF	; SUBCARRIER OFF (L ; OFF)
TEST	; TEST INPUT
VINT	; INITIALIZE
VR	; V RESET
WNDE	; WINDOW ENABLE

OUTPUT

AOUT	; FILTER INVERTER OUTPUT
BFO	; BURST FLAG PULSE
BLKO	; COMPOSITE BLANKING PULSE
CLKO	; CLOCK OUTPUT
COMP	; PHASE COMP
FLD	; FIELD PULSE
FSCO	; 4FSC CLOCK OUTPUT
HDO	; H DRIVE PULSE
LALT	; LINE ALTERNATE PULSE
SC	; SUBCARRIER
SYNC	; COMPOSITE SYNC PULSE
VDO	; V DRIVE PULSE
WND	; WINDOW

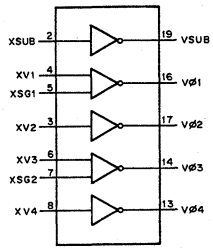
CXD1250M (SONY) FLAT PACKAGE

C-MOS VERTICAL CLOCK DRIVER FOR CCD
– TOP VIEW –



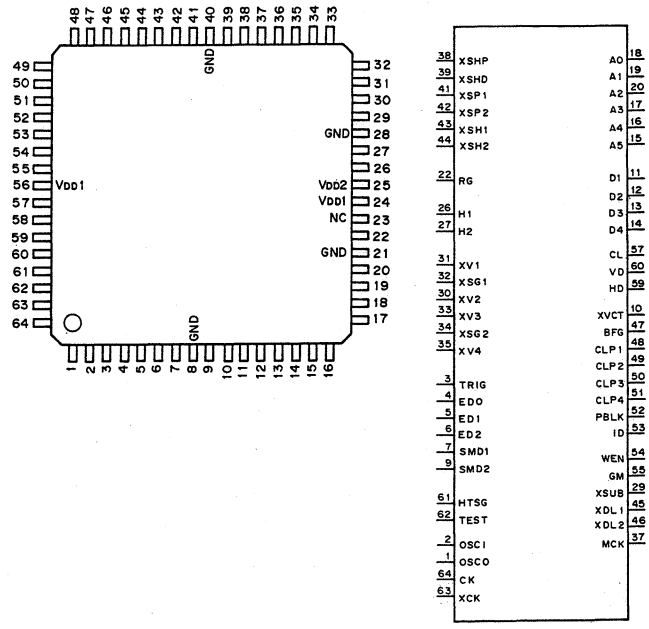
INPUT
XSG1, XSG2 ; SENSOR GATE PULSE INPUT
XSUB ; CCD ELECTRIC CHARGE SWEEPING AWAY PULSE INPUT
XV1-XV4 ; VERTICAL REGISTER TRANSMISSION CLOCK INPUT

OUTPUT
VSUB ; CCD ELECTRIC CHARGE SWEEPING AWAY PULSE OUTPUT
V φ 1-V φ 4 ; VERTICAL REGISTER TRANSMISSION CLOCK OUTPUT



CXD1253R (SONY) FLAT PACKAGE

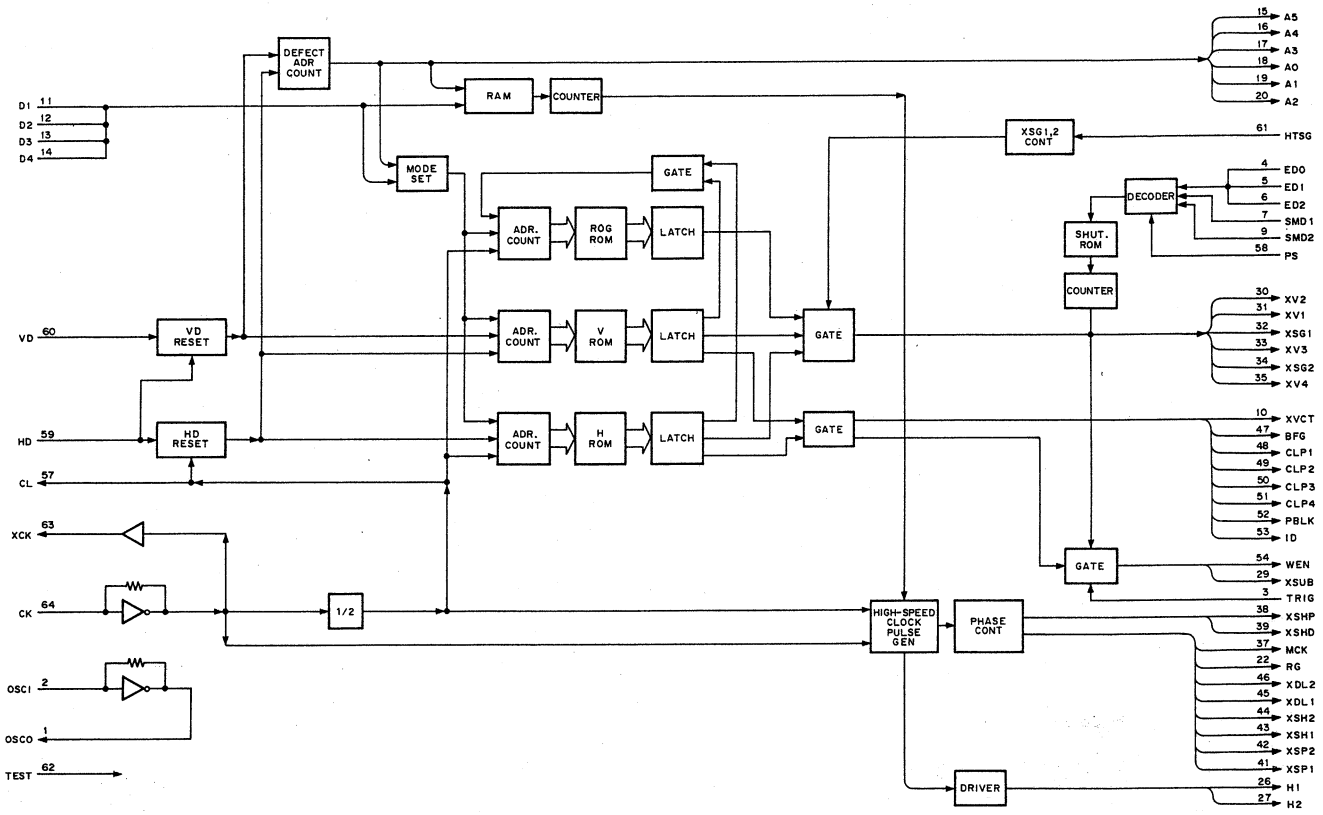
C-MOS TIMING PULSE GENERATOR FOR CCD
– TOP VIEW –



PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	O	OSCO	17	O	A3	33	O	XV3	49	O	CLP2
2	I	OSCI	18	O	A0	34	O	XSG2	50	O	CLP3
3	I	TRIG	19	O	A1	35	O	XV4	51	O	CLP4
4	I	ED0	20	O	A2	36	I	TEST2(NC)	52	O	PBLK
5	I	ED1	21	–	GND	37	O	MCK	53	O	ID
6	I	ED2	22	O	RG	38	O	XSHP	54	O	WEN
7	I	SMD1	23	O	NC	39	O	XSHD	55	I	GM
8	–	GND	24	–	VDD1(+5V)	40	–	GND	56	–	VDD1(+5V)
9	I	SMD2	25	–	VDD2(+5V)	41	O	XSP1	57	O	CL
10	O	XVCT	26	O	H1	42	O	XSP2	58	I	PS
11	I	D1	27	O	H2	43	O	XSH1	59	I	HD
12	I	D2	28	–	GND	44	O	XSH2	60	I	VD
13	I	D3	29	O	XSUB	45	O	XDL1	61	I	HTSG
14	I	D4	30	O	XV2	46	O	XDL2	62	I	TEST
15	O	A5	31	O	XV1	47	O	BFG	63	O	XCK
16	O	A4	32	O	XSG1	48	O	CLP1	64	I	CK

INPUT
CK ; MAIN CLOCK PULSE
D1-D4 ; DATA INPUT FOR EXTERNAL ROM
ED0-ED2 ; SHUTTER SPEED CONTROL PULSE
GM ; NORMAL/G3 SELECT SIGNAL (L ; NORMAL, H ; G3)
HD ; HORIZONTAL DRIVE PULSE
HTSG ; XSG1, XSG2 CONTROL PULSE (L ; STOP, H ; GENERATE)
OSCI ; INVERTER INPUT FOR OSCILLATOR
SMD1, SMD2 ; SHUTTER MODE SET SIGNAL
TEST ; TEST SIGNAL (H ; TEST MODE)
TRIG ; CONTINUOUS VARIABLE SHUTTER CONTROL PULSE
VD ; VERTICAL DRIVE PULSE

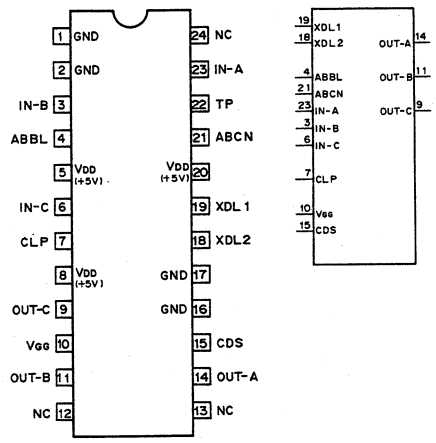
OUTPUT
A0-A5 ; ADDRESS OUTPUT FOR EXTERNAL ROM
BFG ; ENCODER/CHROMA MODULATOR PULSE
CL ; 1/2 CK PULSE
CLP1-CLP4 ; CLAMP PULSE
H1, H2 ; CLOCK PULSE FOR DRIVING HORIZONTAL REGISTER
ID ; LINE DISCRIMINATE PULSE (MOSAIC MODE) : L (STRIPE MODE)
MCK ; CLOCK PULSE FOR G3
OSCO ; INVERTER OUTPUT FOR OSCILLATOR
PBLK ; BLANKING CLEANING PULSE
RG ; RESET GATE PULSE
WEN ; WRITE ENABLE PULSE (ONLY LOW SPEED SHUTTER MODE)
XCK ; INVERTED CK PULSE
XDL1, XDL2 ; DELAY LINE CLOCK (MOSAIC MODE) /CHROMA SEPARATE S/H PULSE (STRIPE)
XSG1, XSG2 ; CCD SENSOR ELECTRIC CHARGE READ OUT PULSE
XSH1, XSH2 ; SELECT S/H PULSE
XSHD ; DATA S/H PULSE
XSHP ; PRE CHARGE S/H PULSE
XSP1, XSP2 ; CHROMA SEPARATE S/H PULSE
XSUB ; CCD ELECTRIC CHARGE SWEEPING AWAY PULSE
XV1-XV4 ; CLOCK PULSE FOR DRIVING CCD VERTICAL REGISTER
XVCT ; POW

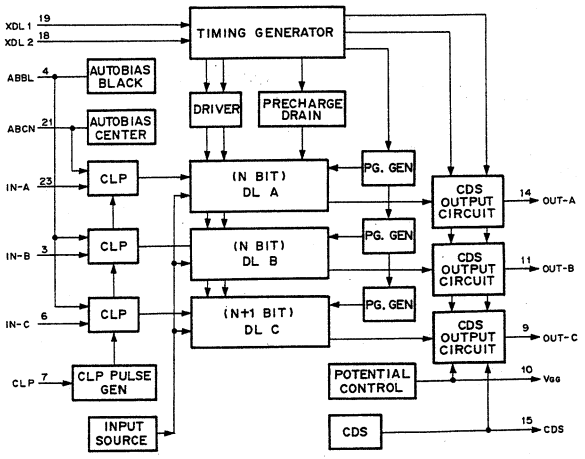


CXL1508N (SONY) FLAT PACKAGE

C-MOS CCD SIGNAL PROSESSOR

– TOP VIEW –





INPUT

CLP	; CLAMP PULSE INPUT
IN-A	; SIGNAL INPUT A CHANNEL (C)
IN-B	; SIGNAL INPUT B CHANNEL (Y)
IN-C	; SIGNAL INPUT C CHANNEL (Y)
XDL1, 2	; CLOCK PULSE INPUT 1, 2

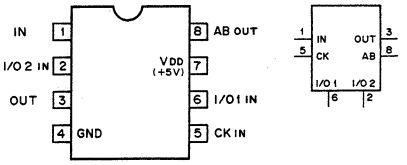
OUTPUT

ABBL	; AUTOBIAS DC OUTPUT FOR Y SIGNAL
ABCN	; AUTOBIAS DC OUTPUT FOR C SIGNAL
CDS	; DC OUTPUT FOR CDS
OUT-A, B, C	; SIGNAL OUTPUT A, B, C CHANNEL
VGG	; OUTPUT CIRCUIT BIAS DC OUTPUT

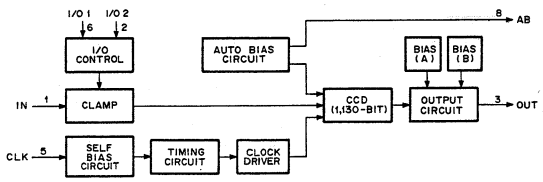
CXL5504M (SONY)

C-MOS CCD 1H DELAY LINE

– TOP VIEW –



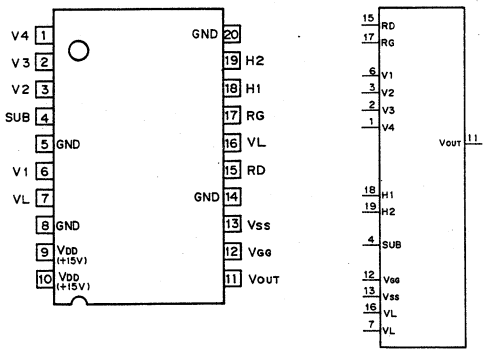
AB ; AUTO BIAS DC OUTPUT
CK ; CLOCK INPUT
IN ; SIGNAL INPUT
I/O1, I/O2 ; I/O CONTROL 1,2 INPUTS
OUT ; SIGNAL OUTPUT



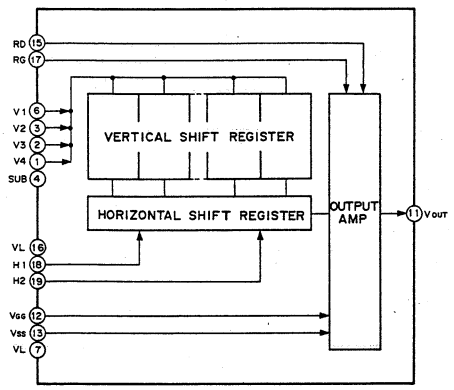
ICX026CK-3 (SONY) (NTSC, COLOR)
ICX027CK-3 (SONY) (PAL, COLOR)

1/2-INCH CCD IMAGE BLOCK

– TOP VIEW –



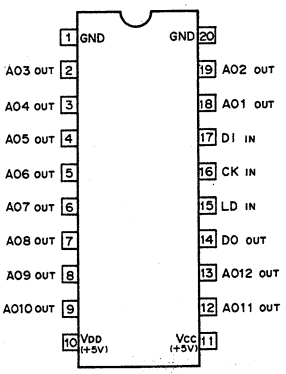
H1, H2 ; HORIZONTAL REGISTER TRANSFER CLOCK
RD ; RESET DRAIN BIAS
RG ; RESET GATE CLOCK
SUB ; OVERFLOW DRAIN
VGG ; OUTPUT AMP GATE BIAS
VL ; PROTECTION TRANSISTOR BIAS
Vss ; OUTPUT AMP SOURCE
V1 – V4 ; VERTICAL REGISTER TRANSFER CLOCK
VOUT ; SIGNAL OUTPUT

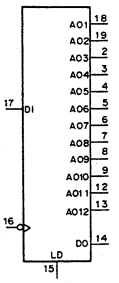


MB88341PFV (FUJITSU) FLAT PACKAGE

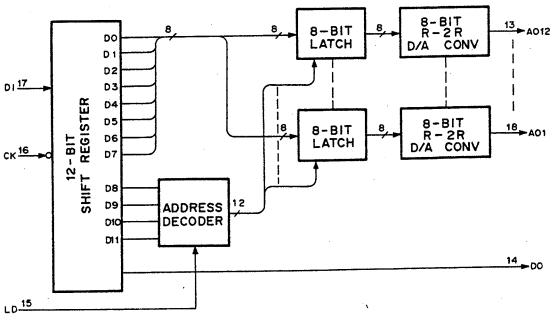
C-MOS 8-BIT D/A CONVERTER

– TOP VIEW –





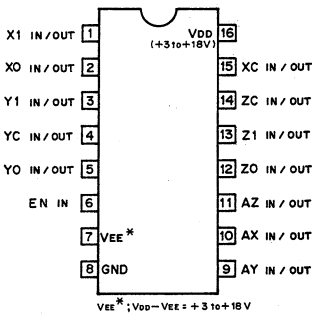
AO1 – AO12 : 8-BIT D/A OUTPUTS
CK : CLOCK INPUT
DI : SERIAL DATA INPUT
DO : DATA OUTPUT
LD : DATA LOAD CONTROL INPUT (H : LOAD)



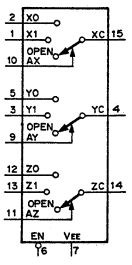
MC14053BF (MOTOROLA) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER

– TOP VIEW –



VEE* ; VDD – VEE = +3 to +18 V



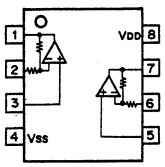
CONT. INPUTS		ON
EN	A (X,Y,Z,)	CHANNEL
0	0	0
0	1	1
1	X	OPEN

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

MC14576AF (MOTOROLA) FLAT PACKAGE

CMOS DUAL VIDEO AMPLIFIER

– TOP VIEW –



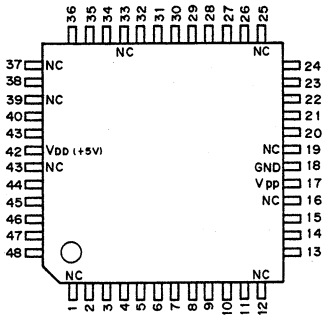
※VDD + | VSS | = + 5V to + 12V

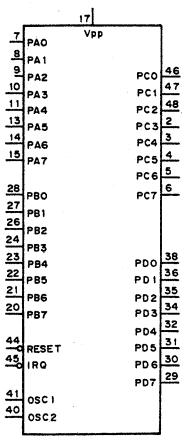
MC68HC05N4 (MOTOROLA)

SC406672FU (MOTOROLA)

C-MOS 8-BIT MICROPROCESSOR

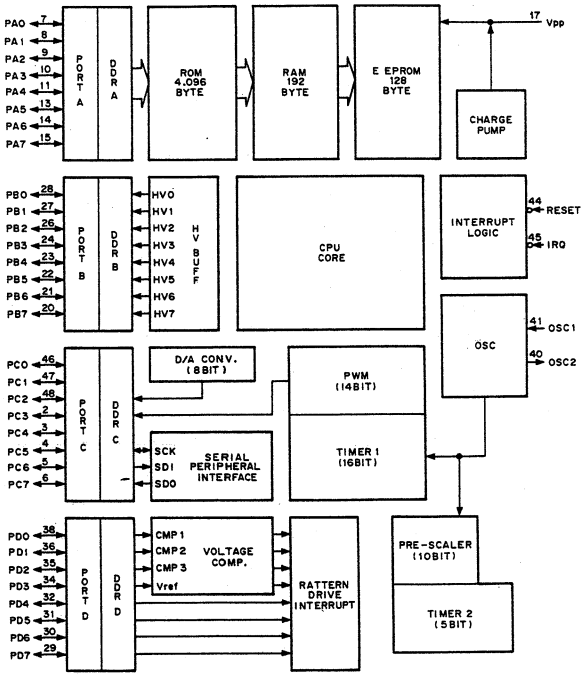
– TOP VIEW –





IRQ	; INTERRUPT REQUEST INPUT
OSC1	; OSC FREQ INPUT
OSC2	; OSC FREQ OUTPUT
PA0 – PA7	; I/O PORT A
PB0 – PB7	; I/O PORT B
PC0 – PC7	; I/O PORT C
PD0 – PD7	; I/O PORT D
RESET	; RESET PULSE INPUT

PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	–	NC	13	I/O	PA5	25	–	NC	37	–	NC
2	I/O	PC3	14	I/O	PA6	26	I/O	PB2	38	I/O	PD0
3	I/O	PC4	15	I/O	PA7	27	I/O	PB1	39	–	NC
4	I/O	PC5	16	–	NC	28	I/O	PB0	40	O	OSC2
5	I/O	PC6	17	I	Vpp	29	I/O	PD7	41	I	OSC1
6	I/O	PC7	18	–	GND	30	I/O	PD6	42	–	VDD (+5V)
7	I/O	PA0	19	–	NC	31	I/O	PD5	43	–	NC
8	I/O	PA1	20	I/O	PB7	32	I/O	PD4	44	I	RESET
9	I/O	PA2	21	I/O	PB6	33	–	NC	45	I	IRQ
10	I/O	PA3	22	I/O	PB5	34	I/O	PD3	46	I/O	PC0
11	I/O	PA4	23	I/O	PB4	35	I/O	PD2	47	I/O	PC1
12	–	NC	24	I/O	PB3	36	I/O	PD1	48	I/O	PC2

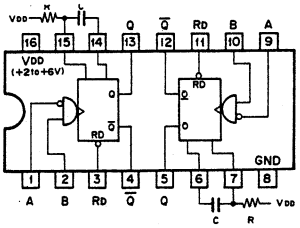


MC74HC123AF (MOTOROLA) FLAT PACKAGE

TC74HC123AF (TOSHIBA) FLAT PACKAGE

C-MOS DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR

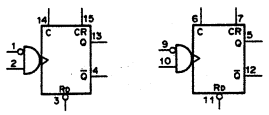
– TOP VIEW –



INPUT			OUTPUT	
RD	A	B	Q	$\overline{Q}$
0	X	X	0	1
1	1	X	0	1
1	X	0	0	1
1	0	↓	↓	↑
1	↑	1	↓	↑
↓	0	1	↓	↑

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

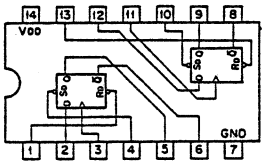
OUTPUT PULSE WIDTH = 0.46CR



MC74HC74AF (MOTOROLA) FLAT PACKAGE

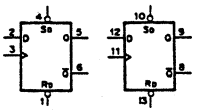
C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET

– TOP VIEW –



INPUTS				OUTPUTS	
$\overline{S_D}$	$\overline{R_D}$	CK	D	Qn+1	$\overline{Q_{n+1}}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Qn	$\overline{Q_n}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



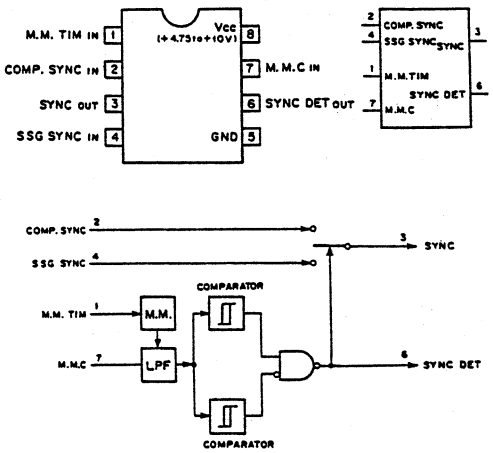
NOTE :

TYPE	VDD
74ACT	+5V
TC74AC74F	+2 to +5.5V
TC74ACT74F	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

NJM2230M (JRC) FLAT PACKAGE

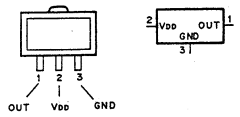
VIDEO SIGNAL DETECTOR

– TOP VIEW –



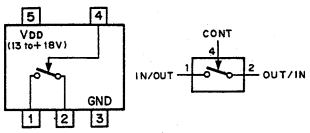
S-8054ALB-LM-S (SEIKO)

C-MOS VOLTAGE DETECTOR
– TOP VIEW –



SC14S66F (MOTOROLA) FLAT PACKAGE

C-MOS BILATERAL ANALOG SWITCH
– TOP VIEW –

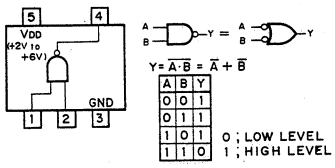


CONT	SWITCH
0	OFF
1	ON

0 ; LOW LEVEL
1 ; HIGH LEVEL

SC7S00F (MOTOROLA) FLAT PACKAGE

C-MOS 2-INPUT NAND GATE
– TOP VIEW –

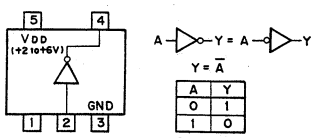


A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

SC7S04F (MOTOROLA) FLAT PACKAGE
SC7SU04F (MOTOROLA) FLAT PACKAGE

C-MOS INVERTER
– TOP VIEW –

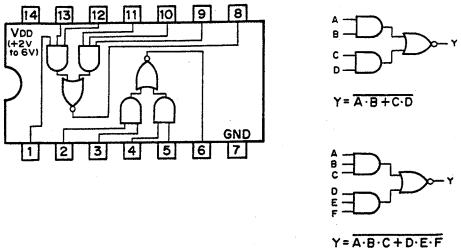


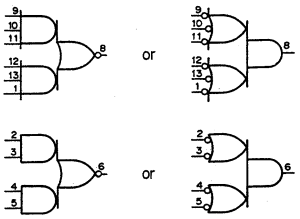
A	Y
0	1
1	0

0; LOW LEVEL
1 ; HIGH LEVEL

SN74HC51NS (TI) FLAT PACKAGE

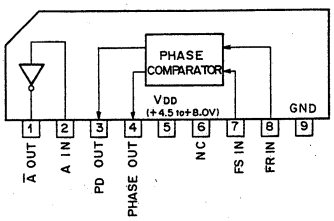
C-MOS DUAL AND/OR INVERT GATE
– TOP VIEW –



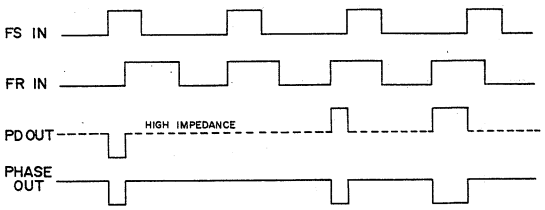


TC5081AP (TOSHIBA)

C-MOS PHASE COMPARATOR
– SIDE VIEW –

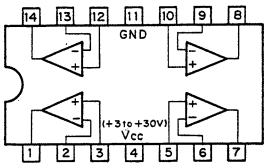


PHASE COMPARATOR TIMING CHART



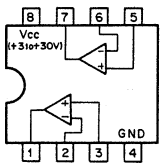
uPC324G2 (NEC) FLAT PACKAGE

QUAD. OP AMPLIFIER
– TOP VIEW –



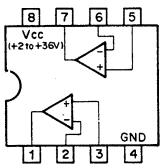
uPC358G2 (NEC) FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIERS
– TOP VIEW –

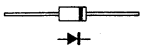


uPC393G2 (NEC) FLAT PACKAGE

DUAL VOLTAGE COMPARATORS
– TOP VIEW –



11EQS10



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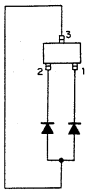
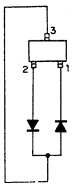
MA151WA



1SS226
MA153



1T33C-01

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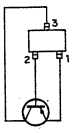

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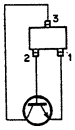

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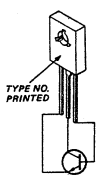

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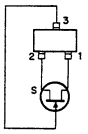
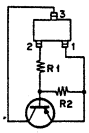


DTA114EK (R1 = 10K, R2 = 10K)



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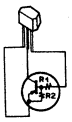

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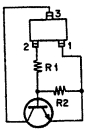
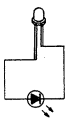
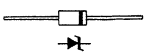


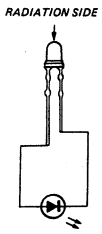
GL-3PR9 ; RED



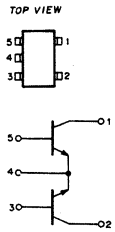
RD10ES-B2
RD36ES-B2
RD5.6ES-B2



SLR-34VR3 ; RED



XN1216
XN1501



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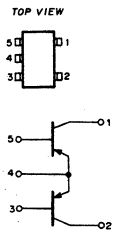

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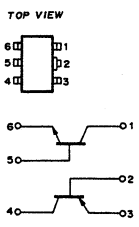


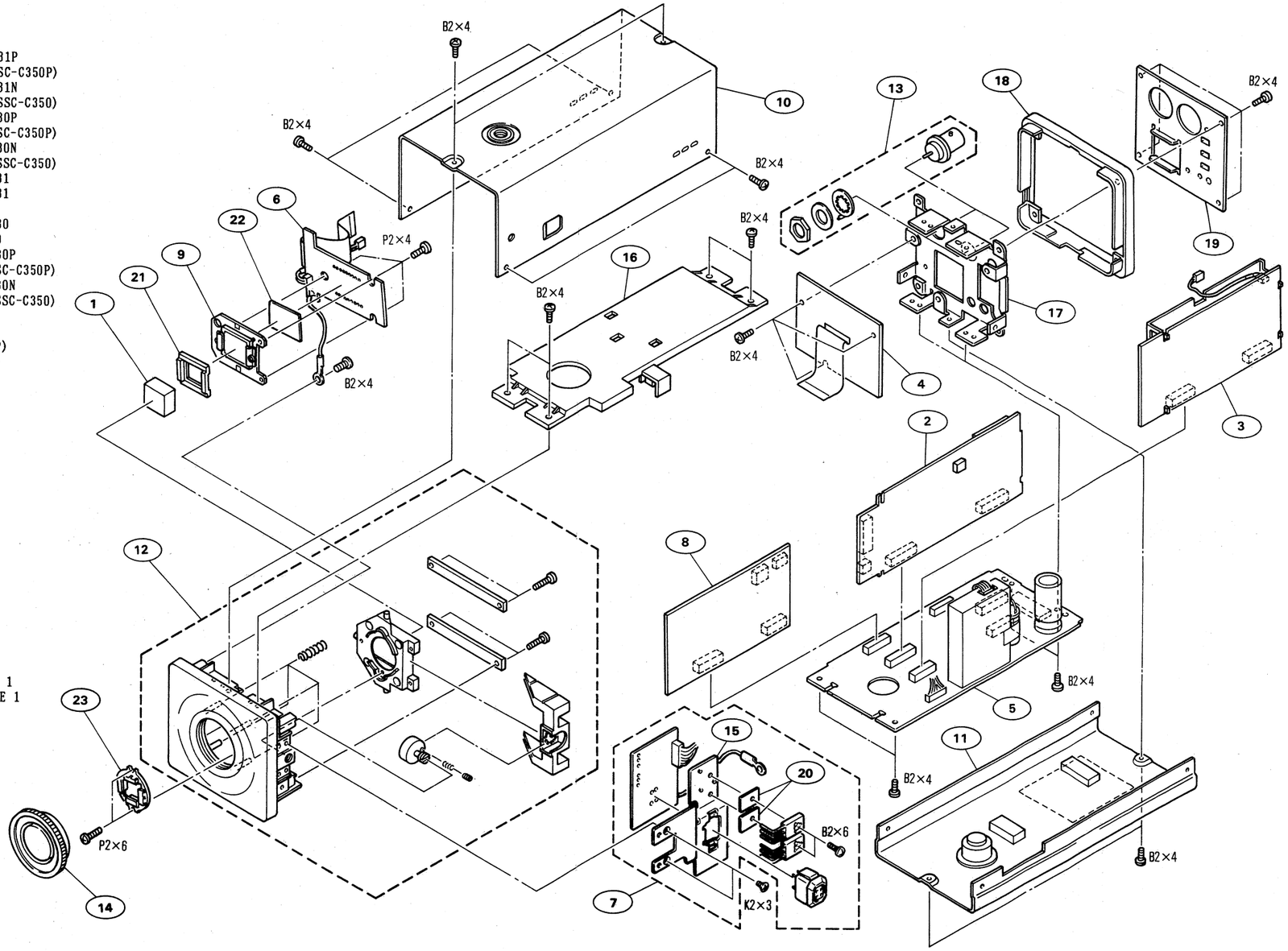
SECTION 6
REPAIR PARTS

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "o" in the SP column are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All resistors are in ohms.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

6-1. EXPLODED VIEW AND PARTS LIST

No.	Part No.	SP	Description
1	A-7090-879-A	s	FILTER BLOCK, OPTICAL
2	A-7515-190-A	o	MOUNTED CIRCUIT BOARD, TG-31P (SSC-C350P)
	A-7515-191-A	o	MOUNTED CIRCUIT BOARD, TG-31N (SSC-C350)
3	A-7515-189-A	o	MOUNTED CIRCUIT BOARD, PR-30P (SSC-C350P)
	A-7515-201-A	o	MOUNTED CIRCUIT BOARD, PR-30N (SSC-C350)
4	A-7520-502-A	o	MOUNTED CIRCUIT BOARD, CB-31
5	A-7520-503-A	o	MOUNTED CIRCUIT BOARD, MB-31
6	A-7520-507-A	o	MOUNTED CIRCUIT BOARD, BI-30
7	A-7520-508-A	o	MOUNTED CIRCUIT BOARD, H-30
8	A-7520-522-A	o	MOUNTED CIRCUIT BOARD, FC-30P (SSC-C350P)
	A-7520-523-A	o	MOUNTED CIRCUIT BOARD, FC-30N (SSC-C350)
9	A-7550-093-A	s	CCD BLOCK ASSY (SSC-C350)
	A-7550-094-A	s	CCD BLOCK ASSY (SSC-C350P)
10	X-3165-039-1	o	CASE ASSY, UPPER (SSC-C350P)
	X-3165-040-1	o	CASE ASSY, UPPER (SSC-C350)
11	X-3165-042-3	o	CASE ASSY, LOWER
12	X-3165-043-1	o	PANEL ASSY, FRONT
13	1-562-382-31	s	CONNECTOR, BNC
14	2-042-385-00	s	CAP, C MOUNT
15	3-165-271-01	o	PLATE, CONNECTOR
16	3-165-272-01	o	STAY
17	3-165-273-01	o	CHASSIS, REAR
18	3-165-806-01	o	FRAME, REAR
19	3-165-807-01	o	PLATE, REAR
20	4-386-536-01	s	SHEET, SILICON
21	4-393-833-01	o	RUBBER, SEAL
22	4-393-834-01	s	SPACER (COL), CCD
23	4-393-836-01	o	BRACKET (COL), FILTER
	7-621-772-10	s	SCREW +B 2X4
	7-621-772-30	s	SCREW +B 2X6
	7-627-452-18	s	SCREW, PRECISION +K 2X3
	7-627-553-48	s	PRECISION SCREW +P 2X4 TYPE 1
	7-627-553-68	s	SCREW, PRECISION +P 2X6 TYPE 1



6-2. ELECTRICAL PARTS LIST

BI-30 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7520-507-A	o	MOUNTED CIRCUIT BOARD, BI-30
C101	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C102	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C103	1-135-145-11	s	TANTALUM, CHIP 0.47uF 10% 35V
C104	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C105	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C106	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C107	1-163-033-00	s	CERAMIC, CHIP 0.022uF 50V
C108	1-135-162-21	s	TANTAL 33uF 10% 6.3V
C109	1-163-033-00	s	CERAMIC, CHIP 0.022uF 50V
C110	1-162-637-11	s	CERAMIC, CHIP 0.47uF 16V
CN101	1-946-454-11	o	HARNESS (CONNECTOR ASSY 2P)
Q101	8-765-420-02	s	TRANSISTOR 2SK300-3
R101	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R102	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R103	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R104	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R105	1-216-103-00	s	METAL, CHIP 180K 5% 1/10W
R106	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R107	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
W101	1-590-164-11	o	CABLE, FLAT(1.0MM PICH)(13CORE)

CB-31 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7520-502-A	o	MOUNTED CIRCUIT BOARD, CB-31
C701	1-162-288-31	s	CERAMIC 330PF 10% 50V
CN701	1-537-315-11	s	TERMINAL BOARD
CN702	1-590-163-11	o	CABLE, FLAT(1.0MM PICH)(16CORE)
D701	8-719-918-76	s	DIODE GL-3PR9
D702	8-719-109-89	s	DIODE RD5.6ES-B2
D703	8-719-109-89	s	DIODE RD5.6ES-B2
D704	8-719-109-89	s	DIODE RD5.6ES-B2
D705	8-719-110-83	s	DIODE RD36ES-B2
F701	⚠1-532-775-11	s	FUSE 0.8A 125V
FL701	1-236-071-11	s	ENCAPSULATED COMPONENT
R701	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R702	1-249-412-11	s	CARBON 390 5% 1/4W
R703	1-247-804-11	s	CARBON 75 5% 1/4W
SW701	1-570-472-11	s	SWITCH, KEY BOARD
SW702	1-570-472-11	s	SWITCH, KEY BOARD
SW703	1-570-313-11	s	SWITCH, KEY BOARD
SW704	1-572-529-11	s	SWITCH, SLIDE
SW705	1-572-529-11	s	SWITCH, SLIDE
SW706	1-572-528-11	s	SWITCH, SLIDE

FC-30 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7520-522-A	o	MOUNTED CIRCUIT BOARD, FC-30P (SSC-C350P)
1pc	A-7520-523-A	o	MOUNTED CIRCUIT BOARD, FC-30N (SSC-C350)
C501	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C502	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C503	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C504	1-126-602-11	s	ELECT 3.3uF 20% 50V
C505	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C506	1-126-602-11	s	ELECT 3.3uF 20% 50V
C507	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C508	1-124-779-00	s	ELECT 10uF 20% 16V
C509	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C510	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C511	1-124-778-00	s	ELECT 22uF 20% 6.3V
C512	1-163-115-00	s	CERAMIC, CHIP 82PF 5% 50V
C513	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C514	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C515	1-124-779-00	s	ELECT 10uF 20% 16V
C516	1-124-778-00	s	ELECT 22uF 20% 6.3V
C517	1-124-778-00	s	ELECT 22uF 20% 6.3V
C518	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C519	1-124-779-00	s	ELECT 10uF 20% 16V
C520	1-135-092-21	s	TANTALUM, CHIP 3.3uF 10% 16V
C521	1-124-779-00	s	ELECT 10uF 20% 16V
C522	1-124-779-00	s	ELECT 10uF 20% 16V
C523	1-124-779-00	s	ELECT 10uF 20% 16V
C524	1-124-779-00	s	ELECT 10uF 20% 16V
C525	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C526	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C527	1-163-101-00	s	CERAMIC, CHIP 22PF 5% 50V
C528	1-163-101-00	s	CERAMIC, CHIP 22PF 5% 50V
C529	1-163-101-00	s	CERAMIC, CHIP 22PF 5% 50V
C530	1-135-181-21	s	TANTAL 4.7uF 10% 6.3V
CN501	1-569-607-21	o	CONNECTOR, BOARD TO BOARD 24P
CN502	1-565-879-11	s	PIN, CONNECTOR (PC BOARD) 7P
CN503	1-568-368-21	s	CONNECTOR, BOARD TO BOARD 20P
D501	8-719-104-34	s	DIODE 1S2836
D502	8-719-104-34	s	DIODE 1S2836
D503	8-719-104-34	s	DIODE 1S2836
IC501	8-759-100-95	s	IC uPC324G2
IC502	8-759-100-93	s	IC uPC393G2
IC503	8-759-100-94	s	IC uPC358G2
IC504	8-759-946-00	s	IC MB88341PFV
IC505	8-759-038-60	s	IC SC406672FU
IC506	8-759-937-56	s	IC S-8054ALB-LM-S
IC507	8-759-031-84	s	IC SC7S04F(SSC-C350P)
IC508	8-759-032-23	s	IC MC74HC74AF
IC509	8-759-032-23	s	IC MC74HC74AF
IC510	8-759-100-95	s	IC uPC324G2
L501	1-412-030-11	s	INDUCTOR CHIP 22uH
L502	1-412-030-11	s	INDUCTOR CHIP 22uH
Q501	8-729-100-66	s	TRANSISTOR 2SC1623
Q502	8-729-100-66	s	TRANSISTOR 2SC1623
Q503	8-729-100-66	s	TRANSISTOR 2SC1623
Q504	8-729-402-84	s	TRANSISTOR XN4601
Q505	8-729-403-42	s	TRANSISTOR XN1401

(FC-30 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q506	8-729-402-84	s	TRANSISTOR XN4601
Q507	8-729-402-84	s	TRANSISTOR XN4601
Q508	8-729-402-84	s	TRANSISTOR XN4601
Q509	8-729-100-66	s	TRANSISTOR 2SC1623
Q510	8-729-216-22	s	TRANSISTOR 2SA1162
R501	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R502	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R503	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R504	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R505	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R506	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R507	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R508	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R509	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R510	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R511	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R512	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R513	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R514	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R515	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R516	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R517	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W
R518	1-216-107-00	s	METAL, CHIP 270K 5% 1/10W
R519	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R520	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R521	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R522	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W
R523	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R524	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R525	1-216-117-00	s	METAL, CHIP 680K 5% 1/10W
R526	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R527	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R528	1-216-107-00	s	METAL, CHIP 270K 5% 1/10W
R529	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R530	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R531	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R532	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R533	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R534	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R535	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R536	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R537	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R538	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R539	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R540	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R541	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R542	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R543	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R544	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R545	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R546	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R547	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R548	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R549	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R550	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R551	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R552	1-216-071-00	s	METAL, CHIP 8.2K 5% 1/10W
R553	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R554	1-216-045-00	s	METAL, CHIP 680 5% 1/10W(SSC-C350P)
	1-216-047-00	s	METAL, CHIP 820 5% 1/10W(SSC-C350)
R555	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W

(FC-30 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R556	1-216-748-11	s	METAL, CHIP 39K 1% 1/10W
R557	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R558	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R559	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R560	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R561	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R562	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R563	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R564	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R565	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R566	1-216-295-00	s	METAL, CHIP 0 5% 1/10W (SSC-C350)
R567	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R568	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R569	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R570	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R571	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W (SSC-C350)
	1-216-748-11	s	METAL, CHIP 39K 1% 1/10W (SSC-C350P)
SW502	1-570-602-11	s	SWITCH, DIP 2-CKT
X501	1-567-819-11	s	VIBRATOR, CERAMIC 4MHz

H-30 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7520-508-A	o	MOUNTED CIRCUIT BOARD, H-30
1pc	3-165-271-01	o	PLATE, CONNECTOR
2pcs	4-386-536-01	s	SHEET, SILICON
2pcs	7-621-772-30	s	SCREW +B 2X6
C601	1-124-234-00	s	ELECT 22uF 20% 16V
CN601	1-580-172-11	s	CONNECTOR, MICRO (RECEPTACLE) 4P
CN602	1-566-762-11	o	PIN, CONNECTOR (PC BOARD) 7P
D601	8-719-110-17	s	DIODE RD10ES-B2
L601	1-408-400-00	s	INDUCTOR 1.8uH
Q601	8-729-188-23	s	TRANSISTOR 2SD882
Q602	8-729-900-61	s	TRANSISTOR DTA114ES
Q603	8-729-306-92	s	TRANSISTOR 2SD669A
R601	1-249-427-11	s	CARBON 6.8K 5% 1/4W
R602	1-249-437-11	s	CARBON 47K 5% 1/4W
R603	1-249-413-11	s	CARBON 470 5% 1/4W

LC-31 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
C801	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C802	1-162-912-11	s	CERAMIC 7PF 0.5PF 50V
C803	1-162-912-11	s	CERAMIC 7PF 0.5PF 50V
C804	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C805	1-135-181-21	s	TANTAL 4.7uF 10% 6.3V
CN801	1-566-095-11	o	PIN, BOARD TO BOARD 5P
CT801	1-141-311-11	s	CAR, TRIMMER 20PF
D801	8-713-300-88	s	DIODE 1T33C-01
IC802	8-759-038-46	s	IC SC7S00F
L801	1-410-373-31	s	INDUCTOR CHIP 2.2uH
L802	1-412-030-11	s	INDUCTOR CHIP 22uH
R801	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R802	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W

MB-31 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7520-503-A	o	MOUNTED CIRCUIT BOARD, MB-31
C201	1-124-778-00	s	ELECT 22uF 20% 6.3V
C202	1-124-778-00	s	ELECT 22uF 20% 6.3V
C203	1-124-471-00	s	ELECT 1000uF 20% 6.3V
C204	1-126-105-11	s	ELECT 1000uF 20% 35V
C205	1-124-442-00	s	ELECT 330uF 20% 6.3V
C206	1-126-200-11	s	ELECT 10uF 20% 35V
C207	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C208	1-124-442-00	s	ELECT 330uF 20% 6.3V
C209	1-126-200-11	s	ELECT 10uF 20% 35V
C210	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C211	1-124-485-11	s	ELECT 330uF 20% 35V
C212	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C213	1-126-206-11	s	ELECT 100uF 20% 6.3V
C214	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C215	1-126-397-11	s	ELECT, CHIP 33uF 20% 25V
C216	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C217	1-126-204-11	s	ELECT 47uF 20% 16V
C218	1-124-472-11	s	ELECT 470uF 20% 10V
CN201	1-946-455-11	o	HARNESS (CONNECTOR ASSY 7P)
CN202	1-566-532-11	s	CONNECTOR, FPC (ZIF) 16P
CN203	1-568-336-11	s	CONNECTOR, BOARD TO BOARD 20P
CN204	1-568-338-51	s	CONNECTOR, BOARD TO BOARD 24P
CN205	1-568-338-51	s	CONNECTOR, BOARD TO BOARD 24P
CN206	1-568-338-51	s	CONNECTOR, BOARD TO BOARD 24P
CN207	1-568-336-11	s	CONNECTOR, BOARD TO BOARD 20P
CN208	1-568-336-11	s	CONNECTOR, BOARD TO BOARD 20P
CN209	1-946-456-11	o	HARNESS (CONNECTOR ASSY 3P)
CN210	1-946-457-11	o	HARNESS (CONNECTOR ASSY 4P)
D201	8-719-200-91	s	DIODE 11EQS10
D202	8-719-200-91	s	DIODE 11EQS10
D203	8-719-104-34	s	DIODE 1S2836
IC201	8-759-009-07	s	IC MC14053BF
L201	1-412-030-11	s	INDUCTOR CHIP 22uH
PU201	1-466-429-11	s	CONVERTER UNIT, DC-DC
Q201	8-729-100-66	s	TRANSISTOR 2SC1623
Q202	8-729-421-23	s	TRANSISTOR XN1216
Q203	8-729-216-22	s	TRANSISTOR 2SA1162
Q204	8-729-100-66	s	TRANSISTOR 2SC1623
Q205	8-729-900-53	s	TRANSISTOR DTC114EK
Q206	8-729-901-04	s	TRANSISTOR DTA114EK
Q207	8-729-900-53	s	TRANSISTOR DTC114EK
Q208	8-729-901-04	s	TRANSISTOR DTA114EK
R201	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R202	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R203	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R204	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R205	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R206	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
R207	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R208	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R209	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R210	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W

(MB-31 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R211	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R212	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R213	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R214	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R215	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R216	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R217	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
R218	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
R219	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W

PR-30 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-189-A	o	MOUNTED CIRCUIT BOARD, PR-30P (SSC-C350P)
1pc	A-7515-201-A	o	MOUNTED CIRCUIT BOARD, PR-30N (SSC-C350)
C301	1-163-109-00	s	CERAMIC, CHIP 47PF 5% 50V
C302	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C303	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C304	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C305	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C306	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C307	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C308	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C309	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C310	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C311	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C312	1-163-109-00	s	CERAMIC, CHIP 47PF 5% 50V
C313	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C314	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C315	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C316	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C317	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C318	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C319	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C320	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C321	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C322	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C323	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C324	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C325	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C326	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C327	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C328	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C329	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C330	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C331	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C332	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C333	1-124-779-00	s	ELECT 10uF 20% 16V
C334	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C335	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C336	1-124-778-00	s	ELECT 22uF 20% 6.3V
C337	1-124-778-00	s	ELECT 22uF 20% 6.3V
C338	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C339	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C340	1-124-778-00	s	ELECT 22uF 20% 6.3V
C341	1-124-778-00	s	ELECT 22uF 20% 6.3V
C342	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C343	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C344	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C345	1-124-779-00	s	ELECT 10uF 20% 16V
C346	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C347	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C348	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C349	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C350	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C351	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C352	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C353	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C354	1-163-101-00	s	CERAMIC, CHIP 22PF 5% 50V
C355	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V

(PR-30 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C356	1-124-779-00	s	ELECT 10uF 20% 16V
C357	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C358	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C359	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C360	1-135-180-21	s	TANTAL 3.3uF 20% 6.3V
C361	1-124-779-00	s	ELECT 10uF 20% 16V
C362	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C363	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
C364	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C365	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C366	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C367	1-124-779-00	s	ELECT 10uF 20% 16V
C368	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C369	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C370	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C371	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C372	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C373	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C374	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C375	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C376	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C377	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C378	1-163-109-00	s	CERAMIC, CHIP 47PF 5% 50V
C379	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C380	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C381	1-135-180-21	s	TANTAL 3.3uF 20% 6.3V
C382	1-124-779-00	s	ELECT 10uF 20% 16V
C383	1-124-778-00	s	ELECT 22uF 20% 6.3V
C384	1-124-778-00	s	ELECT 22uF 20% 6.3V
C385	1-124-778-00	s	ELECT 22uF 20% 6.3V
C386	1-126-206-11	s	ELECT 100uF 20% 6.3V
C387	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C388	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
CN301	1-568-368-21	s	CONNECTOR, BOARD TO BOARD 20P
CN302	1-568-368-21	s	CONNECTOR, BOARD TO BOARD 20P
CN303	1-946-454-11	o	HARNESS (CONNECTOR ASSY 2P)
FL301	1-236-923-21	s	FILTER, LOW PASS
FL302	1-415-779-21	s	DELAY LINE, LC(SSC-C350)
	1-415-781-21	s	DELAY LINE, LC(SSC-C350P)
FL303	1-236-922-21	s	FILTER, LOW PASS(SSC-C350)
	1-236-924-21	s	FILTER, LOW PASS(SSC-C350P)
FL304	1-415-778-21	s	DELAY LINE, LC
FL305	1-415-780-21	s	DELAY LINE, LC
FL306	1-236-206-11	s	FILTER, BAND PASS(SSC-C350)
	1-236-265-11	s	FILTER, BAND PASS(SSC-C350P)
IC301	8-752-038-97	s	IC CXA1391R
IC302	8-752-038-99	s	IC CXA1392R
IC303	8-752-333-28	s	IC CXL1508N
IC304	8-752-332-69	s	IC CXL5504M
IC305	8-759-946-00	s	IC MB88341PFV
IC306	8-759-037-30	s	IC MC14576AF
L301	1-412-030-11	s	INDUCTOR CHIP 22uH
L302	1-412-030-11	s	INDUCTOR CHIP 22uH
L303	1-412-030-11	s	INDUCTOR CHIP 22uH
L304	1-412-030-11	s	INDUCTOR CHIP 22uH
L305	1-412-030-11	s	INDUCTOR CHIP 22uH

(PR-30 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q301	8-729-100-66	s	TRANSISTOR 2SC1623
Q302	8-729-216-22	s	TRANSISTOR 2SA1162
Q303	8-729-216-22	s	TRANSISTOR 2SA1162
Q304	8-729-216-22	s	TRANSISTOR 2SA1162
Q305	8-729-216-22	s	TRANSISTOR 2SA1162
Q306	8-729-216-22	s	TRANSISTOR 2SA1162
Q307	8-729-421-23	s	TRANSISTOR XN1216
Q308	8-729-421-23	s	TRANSISTOR XN1216
Q309	8-729-216-22	s	TRANSISTOR 2SA1162
Q310	8-729-100-66	s	TRANSISTOR 2SC1623
R301	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R302	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R303	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R304	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R305	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R306	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R307	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R308	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R309	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R310	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R311	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R312	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R313	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R314	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R315	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R316	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R317	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R318	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R319	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R320	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R321	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R322	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R323	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R324	1-216-295-00	s	METAL, CHIP 0 5% 1/10W(SSC-C350)
R325	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W (SSC-C350P)
R326	1-216-099-00	s	METAL, CHIP 120K 5% 1/10W
R327	1-216-099-00	s	METAL, CHIP 120K 5% 1/10W
R328	1-216-748-11	s	METAL, CHIP 39K 1% 1/10W
R329	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R330	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R331	1-216-071-00	s	METAL, CHIP 8.2K 5% 1/10W
R332	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R333	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R334	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R335	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R336	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R337	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R338	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R339	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
R340	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W
R341	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R342	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R343	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R344	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R345	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R346	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R347	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R348	1-216-748-11	s	METAL, CHIP 39K 1% 1/10W
R349	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R350	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R351	1-216-295-00	s	METAL, CHIP 0 5% 1/10W(SSC-C350P)

TG-31 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-190-A	o	MOUNTED CIRCUIT BOARD, TG-31P WITH LC-31,WITHOUT IC404(SSC-C350P)
1pc	A-7515-191-A	o	MOUNTED CIRCUIT BOARD, TG-31N WITH LC-31,WITHOUT IC404(SSC-C350)
C401	1-164-005-11	s	CERAMIC, CHIP 0.47uF 25V
C402	1-135-091-00	s	TANTALUN, CHIP 1uF 20% 16V
C403	1-126-602-11	s	ELECT 3.3uF 20% 50V
C404	1-162-974-11	s	CERAMIC 0.01uF 50V
C405	1-126-603-11	s	ELECT 4.7uF 20% 35V
C406	1-162-974-11	s	CERAMIC 0.01uF 50V
C407	1-126-602-11	s	ELECT 3.3uF 20% 50V
C408	1-162-974-11	s	CERAMIC 0.01uF 50V
C409	1-135-070-00	s	TANTALUM, CHIP 0.1uF 10% 35V
C410	1-135-212-21	s	TANTAL 2.2uF 10% 35V
C411	1-162-974-11	s	CERAMIC 0.01uF 50V
C412	1-124-779-00	s	ELECT 10uF 20% 16V
C413	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C414	1-162-974-11	s	CERAMIC 0.01uF 50V
C415	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C416	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C417	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
C418	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C419	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C420	1-135-155-21	s	TANTALUM, CHIP 4.7uF 20% 16V
C421	1-135-155-21	s	TANTALUM, CHIP 4.7uF 20% 16V
C422	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C423	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V (SSC-C350P)
C424	1-162-974-11	s	CERAMIC 0.01uF 50V
C425	1-164-156-11	s	CERAMIC 0.1uF 25V
C426	1-164-156-11	s	CERAMIC 0.1uF 25V
C427	1-164-156-11	s	CERAMIC 0.1uF 25V
C428	1-164-156-11	s	CERAMIC 0.1uF 25V
C429	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C430	1-162-974-11	s	CERAMIC 0.01uF 50V
C431	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C432	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V(SSC-C350)
C433	1-162-974-11	s	CERAMIC 0.01uF 50V
C434	1-164-156-11	s	CERAMIC 0.1uF 25V
C435	1-164-156-11	s	CERAMIC 0.1uF 25V
C437	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C438	1-164-156-11	s	CERAMIC 0.1uF 25V
C439	1-164-156-11	s	CERAMIC 0.1uF 25V
C440	1-162-974-11	s	CERAMIC 0.01uF 50V
C441	1-162-974-11	s	CERAMIC 0.01uF 50V
C442	1-162-974-11	s	CERAMIC 0.01uF 50V
C443	1-163-117-00	s	CERAMIC, CHIP 100PF 5% 50V
C444	1-126-205-11	s	ELECT 47uF 20% 6.3V
C445	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C446	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C448	1-163-109-00	s	CERAMIC, CHIP 47PF 5% 50V
C449	1-163-109-00	s	CERAMIC, CHIP 47PF 5% 50V
C450	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V (SSC-C350P)
C451	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C452	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V (SSC-C350P)
C453	1-135-180-21	s	TANTAL 3.3uF 20% 6.3V (SSC-C350P)
C454	1-162-974-11	s	CERAMIC 0.01uF 50V (SSC-C350P)
C455	1-163-109-00	s	CERAMIC, CHIP 47PF 5% 50V
C456	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
C457	1-163-109-00	s	CERAMIC, CHIP 47PF 5% 50V

(TG-31 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C458	1-135-157-21	s	TANTAL 10uF 10% 6.3V (SSC-C350)
C464	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C465	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C466	1-162-974-11	s	CERAMIC 0.01uF 50V
C467	1-162-974-11	s	CERAMIC 0.01uF 50V
C468	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
C469	1-164-161-11	s	CERAMIC, CHIP 0.0022uF 10% 100V
C470	1-164-161-11	s	CERAMIC, CHIP 0.0022uF 10% 100V
C471	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
C472	1-163-113-00	s	CERAMIC, CHIP 68PF 5% 50V
C473	1-135-181-21	s	TANTAL 4.7uF 10% 6.3V
C474	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C475	1-135-162-21	s	TANTAL 33uF 10% 6.3V
C476	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C477	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C478	1-163-093-00	s	CERAMIC, CHIP 10PF 5% 50V
C479	1-163-105-00	s	CERAMIC, CHIP 33PF 5% 50V
C480	1-162-974-11	s	CERAMIC 0.01uF 50V
C481	1-162-974-11	s	CERAMIC 0.01uF 50V
C482	1-162-974-11	s	CERAMIC 0.01uF 50V
C483	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
C484	1-135-180-21	s	TANTAL 3.3uF 20% 6.3V
C485	1-162-974-11	s	CERAMIC 0.01uF 50V
C486	1-135-181-21	s	TANTAL 4.7uF 10% 6.3V
C487	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C488	1-135-072-21	s	TANTALUM, CHIP 0.22uF 10% 35V
C489	1-162-974-11	s	CERAMIC 0.01uF 50V
C490	1-164-156-11	s	CERAMIC 0.1uF 25V
C491	1-162-974-11	s	CERAMIC 0.01uF 50V
C492	1-162-974-11	s	CERAMIC 0.01uF 50V
C494	1-135-157-21	s	TANTAL 10uF 10% 6.3V
C495	1-162-974-11	s	CERAMIC 0.01uF 50V
C496	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
C497	1-164-156-11	s	CERAMIC 0.1uF 25V
C498	1-164-156-11	s	CERAMIC 0.1uF 25V
C499	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
CN401	1-565-874-11	s	PIN, CONNECTOR (PC BOARD) 2P
CN402	1-566-529-11	s	CONNECTOR, FPC (ZIF) 13P
CN403	1-569-607-21	o	CONNECTOR, BOARD TO BOARD 24P
CN404	1-569-607-21	o	CONNECTOR, BOARD TO BOARD 24P
CN405	1-565-874-11	s	PIN, CONNECTOR (PC BOARD) 2P (SSC-C350)
CN406	1-565-874-11	s	PIN, CONNECTOR (PC BOARD) 2P (SSC-C350P)
CT451	1-141-311-11	s	CAR, TRIMMER 20PF(SSC-C350P)
D401	8-719-800-76	s	DIODE 1SS226
D402	8-719-104-34	s	DIODE 1S2836
D403	8-719-104-34	s	DIODE 1S2836
D404	8-719-104-34	s	DIODE 1S2836
D405	8-713-300-88	s	DIODE 1T33C-01(SSC-C350P)
D407	8-719-104-34	s	DIODE 1S2836
IC401	8-752-037-85	s	IC CXA1390R
IC402	8-759-030-74	s	IC SC14S66F
IC403	8-752-327-46	s	IC CXD1250M
IC404	IC(SUPPLIED WITH CCD BLOCK ASSY)		
IC405	8-752-334-70	s	IC CXD1253R

(TG-31 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC406	8-752-326-08	s	IC CXD1159Q
IC408	8-759-925-88	s	IC SN74HC51NS
IC409	8-759-031-84	s	IC SC7S04F
IC411	8-759-250-81	s	IC TC5081AP
IC412	8-759-008-52	s	IC MC74HC123AF
IC413	8-759-008-52	s	IC MC74HC123AF
IC414	8-759-032-23	s	IC MC74HC74AF(SSC-C350)
IC415	8-759-710-12	s	IC NJM2230M
IC416	8-759-100-94	s	IC uPC358G2
IC417	8-759-038-46	s	IC SC7S00F
IC418	8-759-038-46	s	IC SC7S00F
IC419	8-759-038-46	s	IC SC7S00F
IC420	8-759-031-58	s	IC SC7SU04F
IC421	8-759-038-46	s	IC SC7S00F
L401	1-412-030-11	s	INDUCTOR CHIP 22uH
L402	1-412-030-11	s	INDUCTOR CHIP 22uH
L403	1-412-030-11	s	INDUCTOR CHIP 22uH
L406	1-412-030-11	s	INDUCTOR CHIP 22uH
L407	1-216-039-00	s	METAL, CHIP 390 5% 1/10W
L408	1-410-373-31	s	INDUCTOR CHIP 2.2uH
L409	1-412-030-11	s	INDUCTOR CHIP 22uH
Q401	8-729-100-66	s	TRANSISTOR 2SC1623
Q402	8-729-421-23	s	TRANSISTOR XN1216
Q403	8-729-216-22	s	TRANSISTOR 2SA1162
Q404	8-729-216-22	s	TRANSISTOR 2SA1162
Q405	8-729-402-84	s	TRANSISTOR XN4601
Q406	8-729-100-66	s	TRANSISTOR 2SC1623
Q407	8-729-402-84	s	TRANSISTOR XN4601
Q408	8-729-100-66	s	TRANSISTOR 2SC1623
Q409	8-729-216-22	s	TRANSISTOR 2SA1162
Q410	8-729-100-66	s	TRANSISTOR 2SC1623
Q411	8-729-216-22	s	TRANSISTOR 2SA1162
Q412	8-729-900-53	s	TRANSISTOR DTC114EK
Q413	8-729-100-66	s	TRANSISTOR 2SC1623
Q414	8-729-100-66	s	TRANSISTOR 2SC1623
Q415	8-729-900-53	s	TRANSISTOR DTC114EK
Q416	8-729-117-73	s	TRANSISTOR 2SC4178-F14(SSC-C350P)
Q417	8-729-117-73	s	TRANSISTOR 2SC4178-F14(SSC-C350)
Q419	8-729-117-73	s	TRANSISTOR 2SC4178-F14
R401	1-216-847-11	s	METAL, CHIP 150K 5% 1/16W
R402	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R403	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R404	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R405	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R406	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R407	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R408	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R409	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R410	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R411	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R412	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R413	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R414	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R415	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R416	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R417	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R418	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R419	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R420	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W

(TG-31 BOARD)

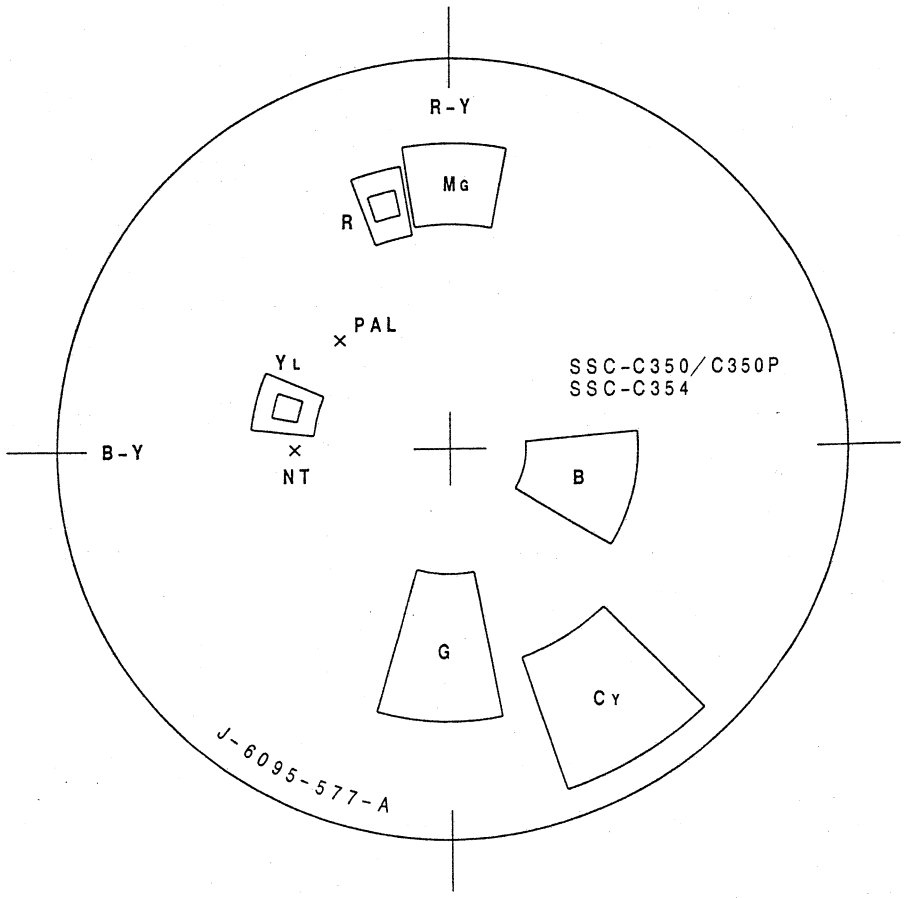
Ref. No. or Q'ty	Part No.	SP	Description
R421	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R422	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R423	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R424	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R425	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R426	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R427	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R428	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R429	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R430	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R431	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W(SSC-C350)
R432	1-216-864-11	s	METAL, CHIP 0 5% 1/16W(SSC-C350)
R433	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W (SSC-C350P)
R434	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W(SSC-C350P)
R435	1-216-843-11	s	METAL, CHIP 68K 5% 1/16W(SSC-C350P)
R436	1-216-809-11	s	METAL, CHIP 100 5% 1/16W(SSC-C350P)
R437	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W(SSC-C350P)
R438	1-216-864-11	s	METAL, CHIP 0 5% 1/16W(SSC-C350)
R439	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R440	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R441	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R442	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R443	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R446	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W (SSC-C350P)
R447	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W(SSC-C350P)
R448	1-216-864-11	s	METAL, CHIP 0 5% 1/16W(SSC-C350)
R449	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W (SSC-C350P)
R450	1-216-864-11	s	METAL, CHIP 0 5% 1/16W(SSC-C350)
R451	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R452	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R453	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R454	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R455	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R456	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R457	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R458	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R459	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R460	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R461	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R462	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R463	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R464	1-216-842-11	s	METAL, CHIP 56K 5% 1/16W
R465	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R466	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R467	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R468	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R469	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R470	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R471	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R472	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R473	1-216-819-11	s	METAL, CHIP 680 5% 1/16W
R474	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R475	1-216-846-11	s	METAL, CHIP 120K 5% 1/16W
R476	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R477	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R478	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W (SSC-C350P)
R479	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R480	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W

(TG-31 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R481	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R482	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R483	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W(SSC-C350P)
R484	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W(SSC-C350)
R485	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R488	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R489	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R490	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R491	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
X401	1-567-733-11	s	VIBRATOR, CRYSTAL 17.734475MHz (SSC-C350P)
X402	1-567-708-12	s	VIBRATOR, CRYSTAL 28.636363MHz (SSC-C350)
	1-567-732-12	s	VIBRATOR, CRYSTAL 28.375MHz (SSC-C350R)

6-3. PACKING MATERIAL & ACCESSORY

No.	Part No.	SP	Description
1pc	A-7475-149-A	s	CONNECTOR ASSY, MICRO
2pc	3-166-524-01	o	CUSHION
1pc	3-166-529-01	o	INDIVIDUAL CARTON (SSC-C350)
1pc	3-166-530-01	o	INDIVIDUAL CARTON (SSC-C350P)
2pc	3-701-623-00	s	BAG, POLYETHYLENE (SSC-C350)
1pc	3-701-623-00	s	BAG, POLYETHYLENE (SSC-C350P)
1pc	3-752-271-12	s	MANUAL, INSTRUCTION (SSC-C350P)
1pc	3-752-271-22	s	MANUAL, INSTRUCTION (SSC-C350)
1pc	3-795-581-21	o	SAFEGUARD, IMPORTANT (SSC-C350)



J-6095-577-A